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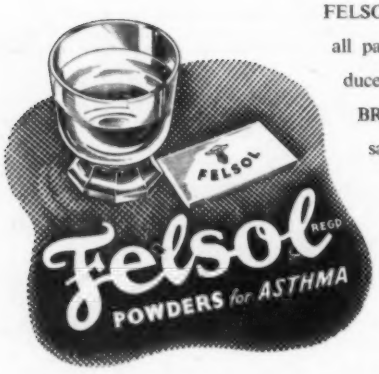

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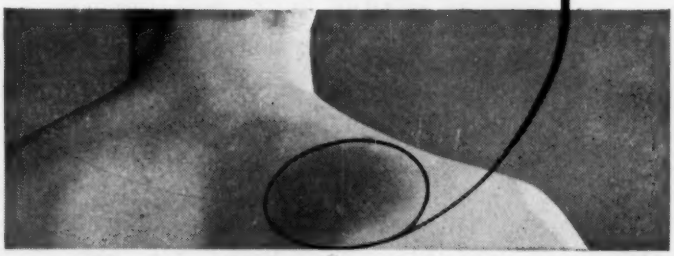

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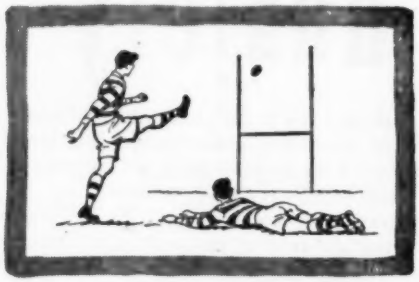

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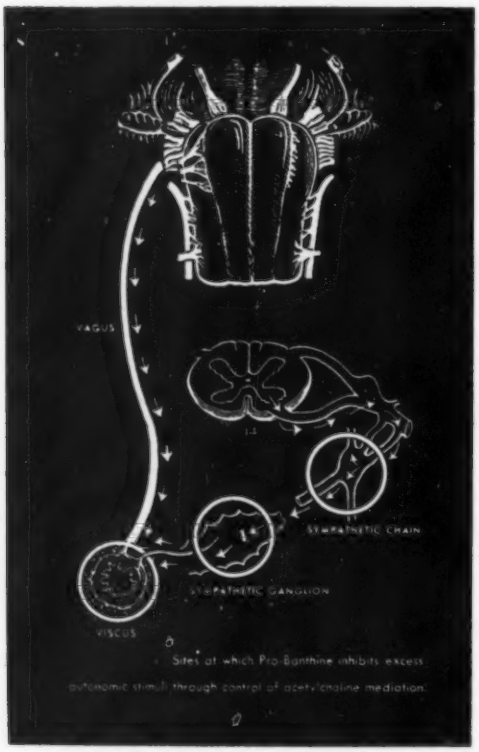

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[1]Gastroenterology (1953) 25 : 416.
[2]Gastroenterology (1953) 25 : 24.

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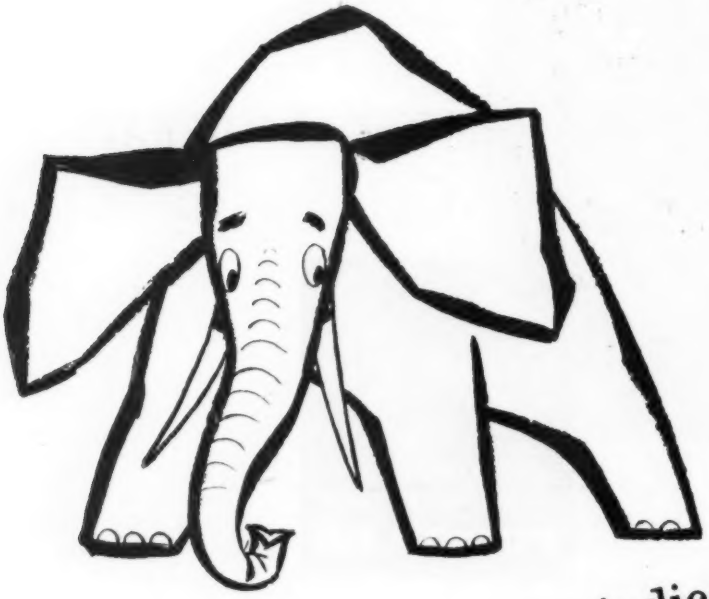

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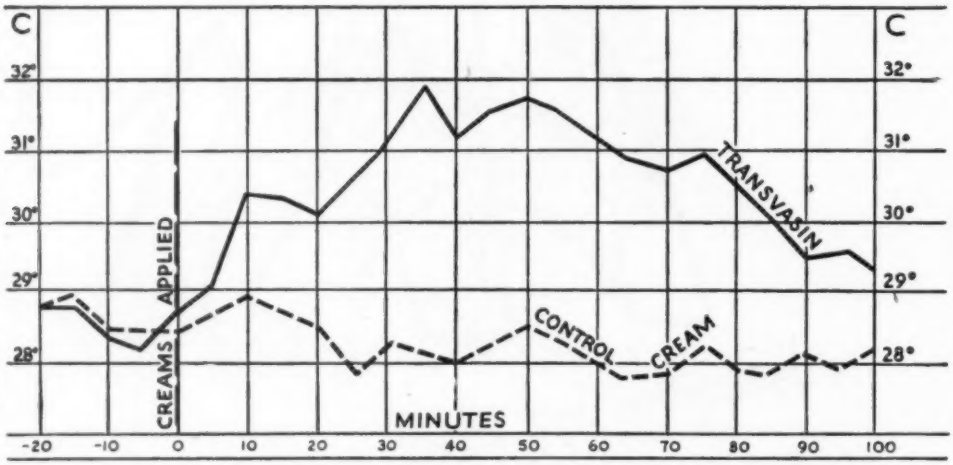
A1

An experiment to show the effect of Transvasin on skin temperature



The graph above is of an experiment to measure the effect of Transvasin on skin temperature on a subject. The solid line plots the skin temperature before and at intervals after a single application of one inch of cream (0.924 grams) from a tube of Transvasin. The broken line gives similar information with regard to the application of a plain vanishing cream used as a control. Skin temperatures were measured with an electro-thermo couple every five minutes for two hours.

IT IS generally agreed that cases of soft-tissue rheumatism and of many types of arthritis benefit by hyperaemia of the affected tissues. Transvasin, which contains two quick-acting esters of nicotinic acid, induces such a deep and prolonged hyperaemia at the same time as it produces superficial erythema.

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Nicotinic acid n-hexyl-ester	2%
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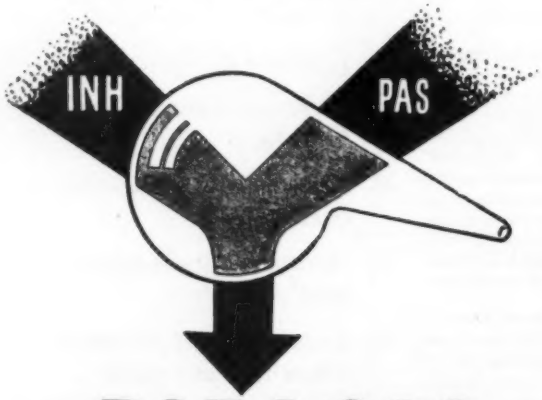

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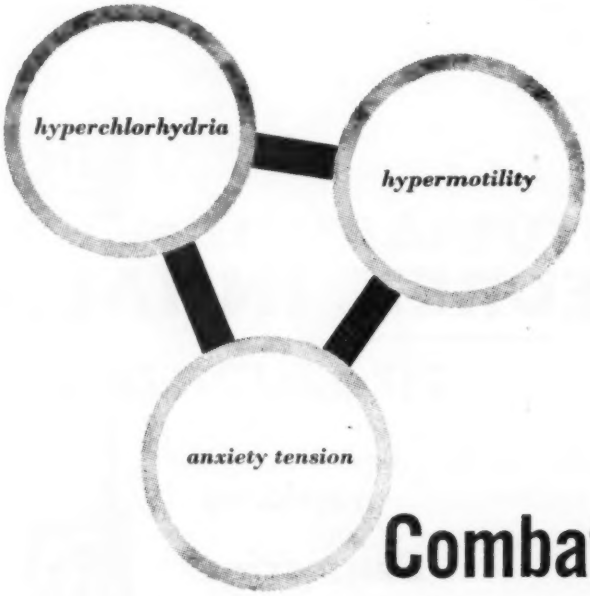

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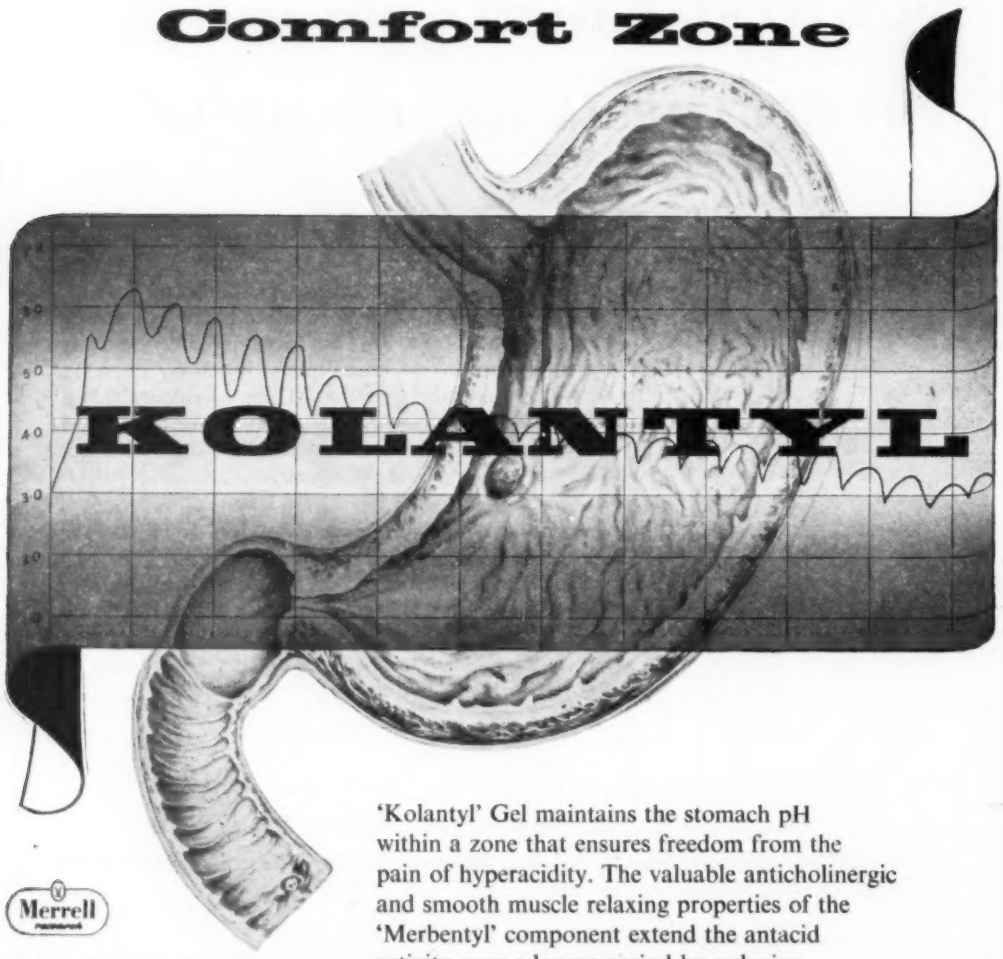

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400 mg.	Dried Aluminium Hydroxide Gel.
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100 mg.	Methylcellulose
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'Kolantyl' Gel maintains the stomach pH within a zone that ensures freedom from the pain of hyperacidity. The valuable anticholinergic and smooth muscle relaxing properties of the 'Merbentyl' component extend the antacid activity over a longer period by reducing peristalsis. This effect is particularly valuable at night. The complementary antacids avoid constipation or undue laxation, and there is no acid rebound.

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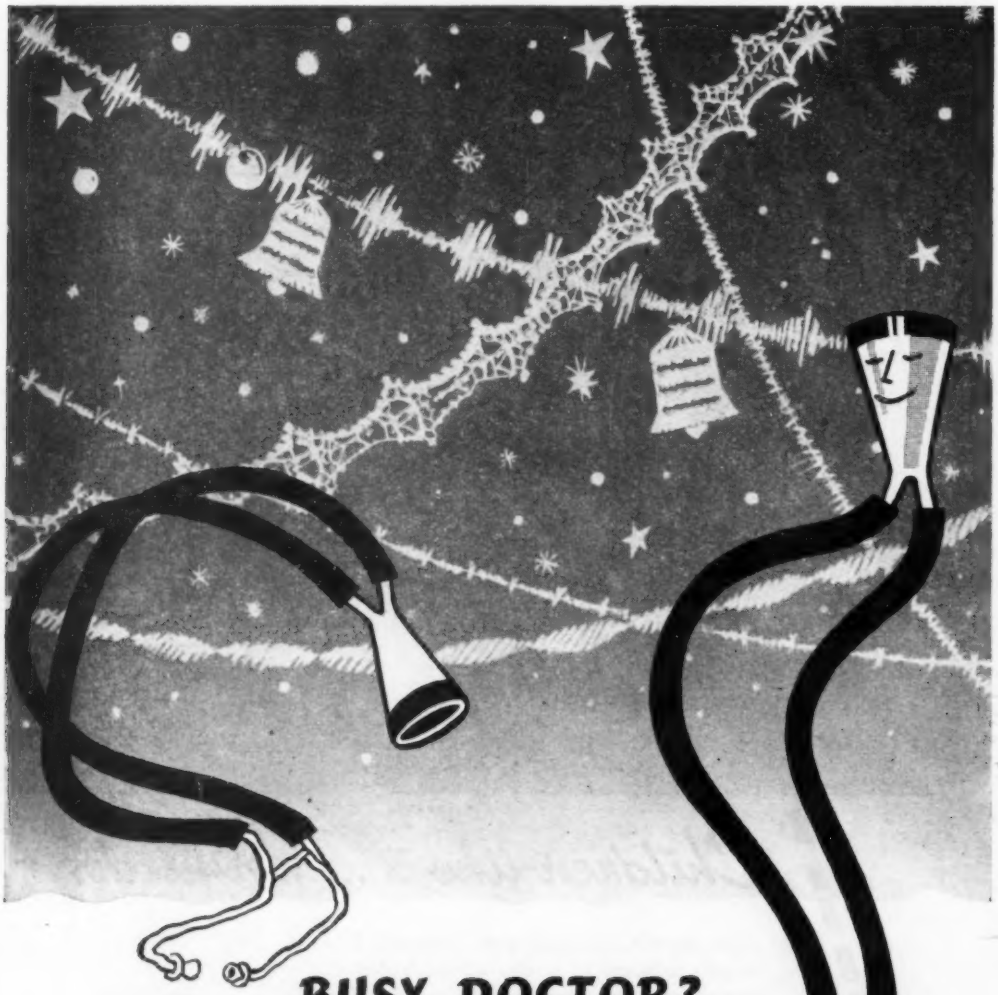

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ENDOCRINE ASPECTS OF CORONARY SCLEROSIS *

M. F. OLIVER
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G. S. BOYD
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ATHEROSCLEROSIS is partly a metabolic disorder. When coronary atherosclerosis produces symptoms, there is elevation of the circulating cholesterol and the beta and low-density lipoproteins (Morrison et al. 1948, Gertler et al. 1950, Barr et al. 1951, Jones et al. 1951, Steiner et al. 1952, Oliver and Boyd 1953b, Nikkilä 1953, Gofman et al. 1954, Rosenberg et al. 1954, Oliver and Boyd 1955b). Consideration of causes for this disturbance of the circulating lipids has emphasised the need for comprehensive investigation of dietary and endocrine influences on lipid metabolism.

Where the diet contains much fat, particularly animal fat, the levels of the circulating cholesterol and β-lipoproteins rise (Anderson and Keys 1953, Keys et al. 1955). In most civilised communities more than one-third of the total caloric intake is derived from fat. Perhaps this habitual daily ingestion of superfluous fat, particularly if it comes largely from animals, may upset the physiological balance of lipid metabolism. Moreover, elaborate epidemiological and racial surveys suggest that the social and geographic incidence of clinical coronary-artery disease may be closely related to the consumption of fat (Keys and Anderson 1954, Keys, Fidanza, et al. 1954, Keys, Vivanco, et al. 1954, Bronte-Stewart et al. 1955).

However, even in countries where the fat consumption is high, most of the population fortunately do not suffer from the clinical manifestations of coronary-artery disease; of four or five men, whose environment and responsibilities are apparently closely comparable, only one may be expected to develop clinical coronary disease. There is an individual susceptibility, which is not well understood, but is probably partly determined by heredity and by endocrine factors. There is a well-known and remarkable sex difference in the incidence of clinical coronary-artery disease. It occurs seven times more often in men than in women before the age of 50 and is commoner in men even after the age of 70 (Oliver and Boyd 1955c). This sex difference, and the association of diabetes, hypothyroidism, and other endocrine diseases with hypercholesterolæmia and arterial disease, indicate that the hormonal control of lipid metabolism requires elucidation. The effect of various hormones on the circulating lipids and lipoproteins has, therefore, been investigated in the human.

Methods

The total-cholesterol level of the plasma was estimated by the Sperry-Schoenheimer procedure as modified by Sperry and Webb (1950). The plasma lipid-phosphorus level was estimated by the molybdenum-blue method of Allen (1940). The concentration of cholesterol attached to the α and β lipoprotein fractions was estimated in mg. per 100 ml. by the filter-paper zone electrophoresis micro-method of Boyd (1954). All subjects with high plasma-cholesterol had levels greater than 260 mg. per 100 ml., which is more than twice the standard deviation of the mean cholesterol of healthy men (Oliver and Boyd 1953b).

Results

Adrenal Cortex

Men with high plasma-cholesterol and coronary-artery disease were given daily intramuscular injections of 50 mg. of corticotrophin (A.C.T.H.) for eight days and of 100 mg. for five days. The plasma-cholesterol, the total-cholesterol/phospholipid ratio (the C/P ratio) in the plasma, and the concentration of cholesterol attached to the β-lipoprotein fraction fell, and the α-lipoprotein cholesterol rose (table I). Similar results were obtained by the daily intramuscular administration of 100 mg. of cortisone acetate for ten days, 150 mg. for ten days, and 200 mg. for ten days. These results in hypercholesterolæmic subjects, all of whom were at work, do not necessarily contradict those of Adlersberg et al. (1950, 1951), who showed that corticotrophin and cortisone raised the serum-cholesterol in patients severely ill with collagen diseases. In their cases the symptomatic improvement, reduction of fever, and return of appetite probably contributed to the rise in serum-cholesterol; moreover, in the few patients who were hypercholesterolæmic or who had some disease other than a collagen disorder, the serum-cholesterol was not significantly raised by corticotrophin and cortisone.

TABLE I—EFFECT OF CORTICOTROPHIN, CORTISONE ACETATE, AND DEOXYCORTONE ACETATE ON CIRCULATING LIPIDS AND LIPOPROTEINS IN HYPERCHOLESTEROLÆMIC MEN WITH CORONARY-ARTERY DISEASE

—	No. of subjects	Plasma-cholesterol	C/P ratio	β-Lipoprotein cholesterol	α-Lipoprotein cholesterol
Corticotrophin (intramuscularly):					
50 mg. daily for 8 days ..	6	−15%	− 5%	−22%	+16%
100 mg. daily for 5 days ..	6	−16%	−16%	−30%	+57%
Cortisone acetate:					
100 mg. daily for 10 days ..	6	−12%	− 9%	−16%	+17%
150 mg. daily for 10 days ..	6	−15%	−11%	−17%	+11%
200 mg. daily for 10 days ..	6	−13%	− 2%	−28%	+47%
Deoxycortone acetate (intramuscularly):					
5 mg. daily for 5 days ..	6	−6%	− 4%	−10%	+48%

Daily intramuscular injection of 5 mg. of deoxycortone acetate for five days depressed the plasma-cholesterol, the C/P ratio, and the β-lipoprotein cholesterol and raised the α-lipoprotein cholesterol; there was an associated 6% reduction of the packed-cell volume.

TABLE II—EFFECT OF THYROID-STIMULATING HORMONE, *l*-THYROXINE, AND TRIIODOTHYROACETIC ACID ON CIRCULATING LIPIDS AND LIPOPROTEINS IN HYPERCHOLESTEROLÆMIC HYPOTHYROID MEN

—	No. of subjects	Plasma-cholesterol	C/P ratio	β-Lipoprotein cholesterol	α-Lipoprotein cholesterol
Thyroid-stimulating hormone (intramuscularly): 10 units daily for 4 days ..	3	No significant change			
l-Thyroxine sodium: 300 µg. daily for 8 weeks ..	6	−40%	− 6%	−29%	+42%
Triiodothyroacetic acid:					
*0·5 mg. daily for 17 days ..	1	−31%	−10%	−40%	+38%
4 mg. daily for 6 days ..	2	−37%	−23%	−26%	+35%

* No elevation of basal metabolic rate.

* A paper presented at the Second European Congress of Cardiology at Stockholm on Sept. 11, 1956.

TABLE III—THE EFFECT OF *l*-THYROXINE, *l*-TRIIODOTHYRONINE, AND TRIIODOTHYROACETIC ACID ON CIRCULATING LIPIDS AND LIPOPROTEINS IN HYPERCHOLESTEROLÆMIC EUTHYROID MEN WITH CORONARY-ARTERY DISEASE

—	No. of subjects	Plasma-cholesterol	C/P ratio	β-Lipoprotein cholesterol	α-Lipoprotein cholesterol
l-Thyroxine sodium:					
600 µg. daily for 2 weeks ..	6	−27%	−17%	−29%	−20%
l-Triiodothyronine:					
*40–60 µg. daily over 8 weeks	3	−16%	−14%	−27%	+42%
40–100 µg. daily over 7 weeks	3	−34%	−17%	−36%	−12%
Triiodothyroacetic acid:					
*0·5–4 mg. daily over 12 weeks	6	−21%	−12%	−26%	+45%
*4 mg. daily for 6 weeks ..	6	−14%	−21%	−12%	+15%

*No elevation of basal metabolic rate.

Thyroid

Daily intramuscular administration of 10 units of thyroid-stimulating hormone (T.S.H.) for four days did not cause any significant change in the circulating lipids and lipoproteins in 3 subjects with primary myxœdema. This suggests that T.S.H. has no direct action on the circulating lipids and lipoproteins, and that any effect in euthyroid subjects is mediated through stimulation of functioning thyroid tissue. When myxœdematous patients were given 300 µg. of *l*-thyroxine sodium daily for eight weeks and triiodothyroacetic acid (an acetic acid analogue of triiodothyronine: Pitt-Rivers 1953) 4 mg. daily for six days, there was depression of the plasma-cholesterol, the C/P ratio, and the β-lipoprotein cholesterol, with elevation of the α-lipoprotein cholesterol (table II). When a very small dose (0·5 mg.) of triiodothyroacetic acid was administered daily for seventeen days, it was possible to influence the lipids and lipoproteins without raising the basal metabolic rate (Boyd and Oliver 1957).

Similar changes in the lipids were achieved in euthyroid patients with high plasma-cholesterol and coronary-artery disease, by giving 600 µg. of *l*-thyroxine sodium, 40 to 100 µg. of *l*-triiodothyronine, and 0·5 to 4 mg. of triiodothyroacetic acid daily by mouth (table III). In contrast to its effect in myxœdematous patients, a large dose of thyroxine did not raise the α-lipoprotein cholesterol; similarly, a large dose of *l*-triiodothyronine did not raise the α-lipoprotein cholesterol. In 10 of the 12 subjects who received triiodothyroacetic acid, depression of the lipids and lipoproteins was achieved without alteration of the basal metabolic rate (Boyd and Oliver 1957).

TABLE IV—EFFECT OF GROWTH-HORMONE, GLUCAGON, AND INSULIN ON THE CIRCULATING LIPIDS AND LIPOPROTEINS IN NORMOCHOLESTEROLÆMIC MEN

—	No. of subjects	Plasma-cholesterol	C/P ratio	β-Lipoprotein cholesterol	α-Lipoprotein cholesterol
Growth hormone (intravenously): 200 mg. over 30 min. ..	2	No significant change			
Glucagon (intravenously): Effect of 2 mg. 6 days later	3	+10%	+2%	+13%	−10%
Insulin (subcutaneously): 50 units daily for 4 weeks ..	3	No significant change			

Pituitary and Pancreas

In normal subjects, intravenous infusion of 200 mg. of a growth-hormone preparation (known to be active in rats) did not significantly alter the circulating lipids and lipoproteins. Intravenous infusion of 2 mg. of glucagon, the hyperglycæmic factor of the pancreas, produced an immediate increase of about 100% in blood-sugar levels; and six days later there was slight elevation of the plasma-cholesterol, the C/P ratio, and the concentration of cholesterol on the β-lipoprotein fraction, with depression of the α-lipoprotein cholesterol (table IV). In depressive patients daily subcutaneous administration of 50 units of insulin for four weeks, in order to induce hypoglycæmia and hunger, did not significantly change the circulating lipids and lipoproteins.

Sex Hormones

It is now fairly well known that, in men with a high plasma-cholesterol and coronary-artery disease, synthetic œstrogens will depress the plasma-cholesterol, the C/P ratio, and the β-lipoprotein cholesterol, and raise the α-lipoprotein cholesterol (table V) (Oliver and Boyd 1954, 1956). Depression of the plasma-cholesterol and β-lipoprotein cholesterol can be maintained over long periods such as one and two years. A similar effect was achieved with the naturally occurring œstrogens, œstradiol, œstrone, and œstriol (table VI).

When 100 mg. of progesterone was given intramuscularly daily for five days to men with a high plasma-cholesterol and coronary-artery disease there was no very significant change in the plasma-cholesterol, the C/P ratio, and the β-lipoprotein cholesterol, although there seemed to be elevation of the cholesterol attached to the α-lipoprotein fraction (table VII). When 50 mg. of methyl testosterone was given orally to such patients the plasma-cholesterol and the β-lipoprotein cholesterol rose and the α-lipoprotein cholesterol fell (table VII). This effect was

TABLE V—EFFECT OF ETHINYL ŒSTRADIOL AND HEXŒSTROL ON CIRCULATING LIPIDS AND LIPOPROTEINS IN HYPERCHOLESTEROLÆMIC MEN WITH CORONARY-ARTERY DISEASE

—	No. of subjects	Plasma-cholesterol	C/P ratio	β-Lipoprotein cholesterol	α-Lipoprotein cholesterol
Ethinyl œstradiol:					
Increasing dose to 1 mg. ..	15	−23%	−33%	−30%	+61%
1 mg. daily for 6 weeks ..	30	−16%	−23%	−20%	+29%
200 µg. daily for 1 year ..	42	− 9%	−26%	−25%	+34%
200 µg. daily for 2 years ..	6	−22%	−20%	−14%	+18%
Hexœstrol:					
60 mg. daily for 2 weeks ..	6	− 9%	−16%	−13%	+30%

TABLE VI—EFFECT OF NATURALLY OCCURRING ŒSTROGENS (ŒSTRONE, ŒSTRADIOL, AND ŒSTRIOL) ON CIRCULATING LIPIDS AND LIPOPROTEINS IN HYPERCHOLESTEROLÆMIC MEN WITH CORONARY-ARTERY DISEASE

—	No. of subjects	Plasma-cholesterol	C/P ratio	β-Lipoprotein cholesterol	α-Lipoprotein cholesterol
Œstradiol:					
12 mg. daily for 2 weeks..	3	− 8%	− 8%	−19%	+15%
24 mg. daily for 2 weeks ..	3	−12%	− 8%	−16%	+19%
Œstrone:					
30 mg. daily for 2 weeks ..	3	− 3%	− 3%	− 2%	+14%
50 mg. daily for 2 weeks..	3	− 9%	0	− 6%	+20%
Œstriol (intramuscularly): 200 mg. daily for 1 week ..	2	−25%	− 6%	−30%	+71%

TABLE VII—EFFECT OF PROGESTERONE AND METHYL TESTOSTERONE ON CIRCULATING LIPIDS AND LIPOPROTEINS IN HYPERCHOLESTEROLÆMIC MEN WITH CORONARY-ARTERY DISEASE

	No. of subjects	Plasma-cholesterol	c/p ratio	β-Lipoprotein cholesterol	α-Lipoprotein cholesterol
Progesterone (intramuscularly): 100 mg. daily for 5 days ..	6	+ 5%	+ 8%	+ 3%	+27%
Methyl testosterone: 50 mg. daily for 10 days ..	6	+30%	− 4%	+11%	− 55%
20 mg. daily for 4 weeks after ethinyl œstradiol administration	12	+50%	+43%	+56%	−26%

especially pronounced when methyl testosterone was administered at the end of a course of ethinyl œstradiol; the œstrogen effect was immediately reversed and the expected rebound following withdrawal of ethinyl œstradiol was greatly exaggerated.

The results are summarised in fig. 1.

Discussion

Atherosclerosis is not a new disease: it has been demonstrated in the abdominal and thoracic aortæ of Egyptian and Coptic mummies dating from 1580 B.C. (Ruffer 1910). In the latter half of the 17th century, and in the 18th and 19th centuries, there were sporadic reports of atheroma of the coronary arteries and aorta. In 1649 William Harvey described, probably for the first time, the association of chest pain with myocardial disease: he recorded the case of a middle-aged knight, who frequently complained particularly at night of a certain oppressive pain in the chest and died in one of his severely oppressive paroxysms ("in uno paroxissimo vehementer oppressus"). The wall of the left ventricle was ruptured and admitted any of Harvey's fingers. Heberden (1772), who first described and named the syndrome angina pectoris in 1768, saw fewer than a hundred cases during his life. Although the symptoms of angina pectoris were known to many of the physicians of the last century, the disease was infrequently diagnosed. Osler (1897), during all his years of clinical experience, saw only 40 cases of true angina and did not diagnose one case during his ten years of private and hospital practice in Montreal. Mackenzie, with his early experience in general practice and later as a leading cardiologist, wrote as late as 1923 that the number of patients who had consulted him for angina pectoris was 380. Moreover, the symptoms of thrombosis of a coronary artery were not adequately described until this century (Obrastzow and Straschesko 1910) and not widely recognised until Herrick's classical paper had appeared in 1912.

In 1954 about 19% of all deaths in Great Britain were attributed to arteriosclerotic and coronary heart-disease. It is hardly conceivable that this alarming increase in the prevalence of clinical coronary disease is entirely a result of inadequate diagnosis before this century. There is little doubt that it is partly real; and it coincides with the many remarkable social and economic changes of this century. One speculative interpretation of the ætiological sequence leading from the 20th-century environment to the development of clinical coronary-artery disease is presented in fig. 2. In the civilised nations the standard of living has never been higher than it is now, and in general the physical activity and energy expenditure of many people has probably been reduced. Moreover, this rise in the standard of living of Western nations has resulted in an abundance of food, and the individual's caloric and fat intake has increased with his purchasing-power. When energy intake exceeds energy expenditure, calories must be stored within the organism—usually as lipid. It is possible that when the intake of dietary calories is frequently in excess of the expenditure of calories by physical activity, a chronic disturbance of lipid metabolism results. Furthermore, there is accumulating evidence that the habitual daily ingestion of more than about one-third of the total calories from fat, particularly if it is mainly of animal origin, may disturb normal lipid metabolism.

The incidence of clinical coronary-artery disease is greatest in professional, business, and intellectual occupations where heavy responsibilities presumably demand exacting and prolonged mental work (Ryle and Russell 1949, Registrar-General 1954). The psycho-

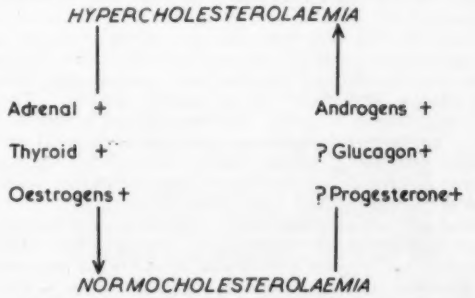

Fig. 1—Summary of some hormonal influences on the circulating cholesterol.

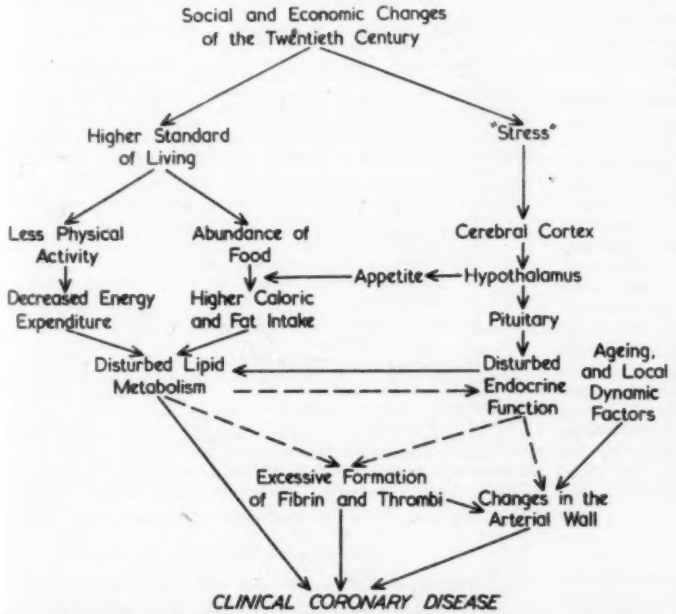

Fig. 2—Speculative scheme showing possible association between the 20th-century environment and clinical coronary-artery disease.

logical strain and emotional tensions that often accompany these responsibilities are undoubtedly stressful to some people, particularly if they have inherited an ambitious and conscientious personality, but others may adapt themselves to them satisfactorily. It is possible that failure to withstand environmental responsibilities will be transmitted to the endocrine system via the cerebral cortex and hypothalamus and will result in disturbance of endocrine balance. This certainly happens after acute stress, when the normal pituitary-adrenal cortex balance and also the normal pituitary-thyroid balance are greatly deranged. The development of tumours, the production of lesions, and electrical stimulation of certain parts of the hypothalamus has indicated that this body plays an important part in the control of appetite (le Gros Clark et al. 1938, Hetherington and Ranson 1940, Rodriguez-Delgado and Anand 1953); and there is evidence that certain maladaptations to the environment may result in obesity (Hamburger 1951, Brosin 1954), and thus influence lipid metabolism.

The various hormonal influences on the circulating cholesterol are summarised in fig. 1. Administration of adrenal, thyroid, and œstrogen preparations reduces the plasma-cholesterol if it is high. Administration of androgens, and possibly of glucagon and progesterone, raises the plasma-cholesterol above normal levels. These hormonal effects, together with the changes in the circulating lipids and lipoproteins with the menstrual cycle (Oliver and Boyd 1953a, 1955c) and with pregnancy (Oliver and Boyd 1955a), indicate that endocrines participate in cholesterol and lipid metabolism.

Evidence is also accumulating that hormones influence blood-coagulation and fibrinolytic activity. Administration of corticotrophin or cortisone increases the frequency of thrombo-embolic episodes (Cosgriff 1951). These hormones inhibit fibrinolytic activity, whereas T.S.H., growth hormone, testosterone, and deoxycortone acetate are said to increase fibrinolytic activity (Ungar 1954). Adrenaline and experimentally produced stress increase fibrinolytic activity (Macfarlane and Biggs 1946), increase the prothrombin concentration (Uvnäs 1942, Leibetseder 1951), decrease heparin activity (Constantini and Tintori 1951, Donzelot and Kaufmann 1952), and accelerate clotting (Mills et al. 1928). There is increasing evidence that alimentary lipæmia may accelerate clotting (Fullerton et al. 1953, Poole 1955, Robinson and Poole 1956) and also inhibit fibrinolytic activity (Greig 1956).

A third influence of hormones may concern certain tissue reactions. For example, corticotrophin and cortisone decrease capillary permeability and fibroblast activity, and thereby impair organisation of intravascular thrombi (Payling-Wright 1954, Chun-I et al. 1955). Thyroid deficiency is associated with connective-tissue changes. Experimentally, cortisone and deoxycortone acetate produce hypertension with vascular changes. These and other observations suggest that a third consequence of any disturbance of endocrine function may be changes in the arterial wall itself. In addition, decreased fibrinolytic activity (Astrup 1956) and excessive fibrin-deposition may result in intimal thickening (Duguid 1946, 1949), and advancing age produces involutionary changes in the intima, elastic lamina, and media. These are greatly aggravated by any general or local increase in intravascular hydrostatic pressure, which, in conjunction with any disturbance in the physical characteristics of blood or the flow of blood through the artery, may help to produce an atheromatous lesion at certain characteristic sites.

Summary

Evidence is presented that certain hormones influence cholesterol and lipid metabolism. Endocrine imbalance may contribute to the production of clinical coronary-artery disease by causing some of the abnormalities in the circulating lipids and lipoproteins, by predisposing to thrombosis, and possibly by favouring the development of some of the arterial changes characteristic of atheroma.

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CLINICAL EXPERIENCE WITH THE SKEGGS-LEONARDS TYPE OF ARTIFICIAL KIDNEY*

REPORT ON 46 CONSECUTIVE PATIENTS

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THE clinical use of artificial kidneys was first described by Kolff and Berk (1944). Since then various modifications of the Kolff dialyser have been intensively used, especially in Boston (Merrill 1955) and in Paris (Hamburger and Richet 1956). In Scandinavia the Alwall (1947) type has been used in various centres. In the Kommunehospital, Copenhagen, we have had favourable experience with a third type of apparatus, designed by Skeggs and Leonards (1948); seventy-eight dialyses on 46 patients (table I) have given us the impression that hæmodialysis is an indispensable adjuvant to the conservative treatment of acute renal failure.

Technique

In the Skeggs-Leonards dialyser (fig. 1) the blood is pumped between 'Cuprophane P.T. 150' sheets, about 11 μ thick, which separate it from bath-fluid flowing in the opposite direction. The apparatus measures 18×12×6 inches and contains about 300 ml. of blood. The dialysing surface is about 2 sq. m. After assembly the apparatus is sterilised and the cuprophane is freed from soluble additives by 10–20 hours' perfusion with tap-water heated to 98–102°C. Next the apparatus is sealed in oil-cloth and kept at 4°C (sometimes for 3–4 weeks) until it is used. Generally two artificial kidneys are kept ready for use. Before dialysis is begun, the blood compartment is filled with blood under a pressure of about 130 mm. Hg, which is about the pressure existing during actual operation. In this way an initial fall in blood-pressure is avoided.

TABLE I—ANALYSIS OF 78 DIALYSES IN 46 PATIENTS

Group no.	Disease	No. of patients	Survived	Died
I	Severe primary lesions with complicating acute renal failure and uræmia	19	1	18
II	Acute renal failure and uræmia; primary disease practically overcome	16	10	6
III	Uræmia (chronic-subchronic renal disease)	5	1	4
IV	Poisoning (potassium, bromide, barbiturates)	6	5	1

Efficiency

The blood-flow is usually 400–700 ml. a minute, and the flow of saline solution 2000–3000 ml. a minute. The urea-clearance of the apparatus is 150–250 ml. of blood a minute. By varying the gradient of hydrostatic pressure between the blood and the saline solution the rate of ultrafiltration can be regulated, so that a weight-loss of 500–600 g. an hour can be obtained, if dehydration is desired.

Material and Results

From August, 1954, to June, 1956, 78 hæmodialyses were done on 46 patients at the Kommunehospital. 35 of these patients had acute renal failure. (During the same period 38 other cases of acute renal failure were treated conservatively and are not included in this report.) The 46 dialysed patients fall in four groups (table I).

Group I

In this group (table II) the clinical picture was dominated by the primary disorder which had caused the renal failure. The results of treatment were not good, only 1 of 19 patients surviving. In estimating these results the extremely bad clinical condition of the patients should be borne in mind; as already mentioned, the primary disorder was dominating, and a large proportion of these patients had severe complications in addition to the uræmia. The average serum-urea level on the day of the first dialysis was about 500 mg. per 100 ml., but in only 1 patient (case 7) did the uræmia seem to be responsible for death. 6 of the 19 patients were in a state of either latent or manifest shock before the dialysis.

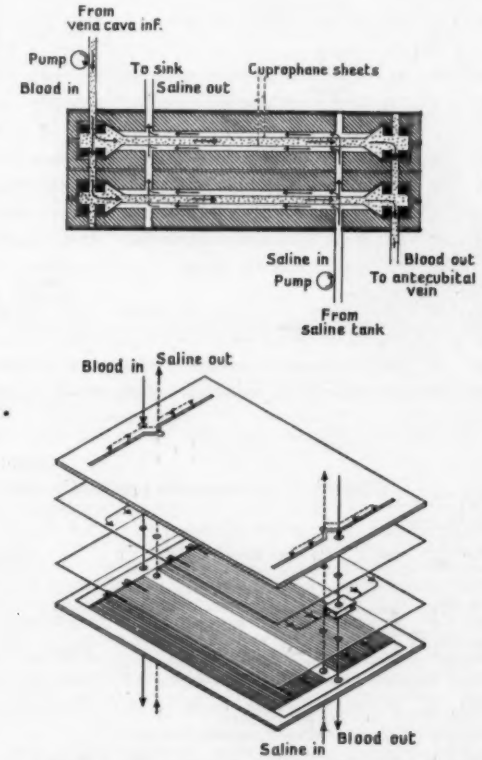

Fig. 1—Longitudinal section through Skeggs-Leonards dialyser.

For simplicity only two units are shown. Usually the apparatus is assembled with twelve units, each consisting of two grooved rubber pads (hatched) between which two cuprophane sheets are placed, separated at either end of the apparatus by perforated steel spacers (black). The units are tightened together between two steel plates (black), on which are mounted short steel tubes for inflow and outflow of blood and dialysing fluid. The blood is pumped from the inferior vena cava through the apparatus, runs in a thin layer between the cuprophane sheets, and is returned to the patient through an antecubital vein. The dialysing fluid is pumped from a tank containing 300 litres the opposite way through the apparatus and runs between the rubber pads and the outside of the cuprophane sheets. From the apparatus the fluid runs to the sink or is collected for analysis. Below is shown the exploded view of one unit.

* This work was done with the help of grants from King Christian X's Foundation and from the Danish State Research Foundation.

In several cases the shock was refractory to ordinary shock-therapy, and only by *l*-norepinephrine infusion could an acceptable blood-pressure be maintained.

Group II

In this group (table III) the condition of the patients was dominated by the uræmia, the initiating disease

TABLE II—GROUP I

(The condition of the patients was dominated by the primary disease that had caused the acute renal failure)

Case no.	Sex	Age (yr.)	Cause of acute renal failure	Complications	Highest serum-urea level (mg. per 100 ml.)	No. of dialyses	Outcome
1	M	62	Barbiturate poisoning with shock	Non-reversible shock	389	1	Died in shock 20 hr. after admission
2	F	51	Cerebral hæmorrhage with shock	..	422	1	Died from primary disease during anuria
3	M	44	Barbiturate poisoning with shock	Intractable shock	532	1	Died in shock 20 hr. after dialysis
4	M	73	Resection of prostate gland with shock	Pyelonephritis, papillary necrosis	360	1	Died from complications
5	F	44	Shock during operation for septic otitis	Meningitis, sepsis	506	2	Died from cerebral hæmorrhage during diuresis
6	F	56	Shock during operation for pulmonary tuberculosis	Intractable shock	475	1	Died in shock during anuria
7	M	58	Shock during operation for perforating gastric ulcer, dehydration	Intractable shock, intestinal paralysis	680	2	Died in shock during anuria
8	M	51	Splenic rupture with shock	Intestinal paralysis, several fractures, hyperkalæmia, protracted shock, retroperitoneal hæmorrhage	536	3	Died from complications during anuria
9	M	59	Shock after operation on biliary tract	Cholascos, pulmonary atelectasis	482	1	Died from complications during anuria
10	M	16	Rupture of liver with shock	Intestinal paralysis, cholascos	561	1	Died from pulmonary hæmorrhage after aspiration of blood from pleural cavity during anuria
11	M	76	Hepatorenal syndrome	Coronary sclerosis	532	1	Died from primary disease and complications during anuria
12	M	66	Acute pancreatitis	Protracted shock	661	1	Died from primary disease during anuria
13	M	49	Gastric resection, dehydration	Lobar pneumonia	438	2	Discharged with almost normal renal function
14	M	29	Duodenal resection, dehydration	Diffuse peritonitis	424	1	Died from peritonitis during diuresis
15	F	49	Gastric resection, shock	Pancreatic necrosis, peritonitis, coronary sclerosis, hypertension	420	1	Died from peritonitis during diuresis
16	F	72	Radical operation for metastatic cancer of uterus	Acute pyelonephritis, papillary necrosis, pneumonia	356	1	Died from lung complications during anuria
17	F	55	Operation on biliary tract	Pancreatitis, peritonitis	425	2	Died from peritonitis during anuria
18	M	54	Operation for metastatic labial cancer, shock	Cerebral thrombosis	469	2	Died from cerebral complications during anuria
19	M	52	Cholangiitis, choledocholithiasis	Acute gastric ulcer with hæmatemesis and melæna	455	2	Died from protracted shock due to internal hæmorrhage

TABLE III—GROUP II

(The primary disease was practically overcome, the patients' condition being due to uræmia)

Case no.	Sex	Age (yr.)	Primary disease causing anuria	Complications	Highest serum-urea level (mg. per 100 ml.)	No. of dialyses	Outcome
20	F	68	Shock during osteosynthesis	Pneumonia	498	1	Died from pulmonary œdema during diuresis
21	F	35	Barbiturate poisoning, shock	Sepsis	426	1	Died from sepsis
22	M	54	Barbiturate poisoning, shock	Sepsis, pneumonia	578	3	Discharged with renal function 70 % of normal
23	M	70	Shock during operation for cancer of rectum	Protracted shock, pneumonia	467	1	Died from intractable shock
24	F	41	Barbiturate poisoning, shock	..	503	1	Discharged with renal function about 70 % of normal
25	M	47	Shock after poisoning with unknown agent	Sepsis	510	2	Died probably from septicæmia during anuria
26	F	34	Barbiturate poisoning, shock	..	643	1	Discharged with normal renal function
27	M	19	Poisoning with hæmolytic agent	Cachexia, hyperkalæmia, sepsis	726	8	Died in cachexia
28	F	61	Mismatched transfusion	Hyperkalæmia	502	1	Died from hyperkalæmia or pulmonary œdema during anuria
29	M	44	Shock during nephrectomy	Subphrenic abscess	590	1	Discharged with almost normal renal function
30	F	58	Abscess in pouch of Douglas, cause of anuria unknown	Severe infection of urinary tract	400	1	Discharged with renal function 30 % of normal (chronic pyelonephritis)
31	F	22	Septic abortion with hæmolysis and shock	Sepsis, protracted pulmonary insufficiency	408	4	Discharged with almost normal renal function
32	M	71	Acute cholecystitis with shock	Thrombopenia, melæna, hæmatemesis	421	1	Discharged with renal function 50 % of normal
33	F	69	Hemicolectomy, protracted hypotension	..	415	2	Discharged with renal function 30–50 % of normal
34	M	29	Barbiturate poisoning, shock	Protracted pulmonary insufficiency	402	2	Discharged with almost normal renal function
35	F	43	Shock after operation for cancer of uterus	..	454	4	Discharged with almost normal renal function

being overcome at an early stage. Here the results were more encouraging, 10 of 16 patients surviving. This is undoubtedly due to the fact that at the time of severe uræmic intoxications these patients were no longer much influenced by the primary disorder or by other secondary severe complications.

In 5 patients (cases 21, 22, 24, 26, and 34) acute renal failure followed severe acute barbiturate poisoning with sustained shock. By combined conservative treatment and hæmodialysis all these patients were kept alive until their renal function became efficient, and 4 made a complete recovery.

In case 27 (fig. 2) anuria developed after poisoning with a strongly hæmolytic drug. The hæmolysis soon subsided, and the condition became purely uræmic. By eight dialyses the patient was kept alive for about a month practically without renal function (on the day of the first dialysis the serum-urea level was 726 mg. per 100 ml.). The patient's condition gradually deteriorated, and he died after his renal function had become efficient.

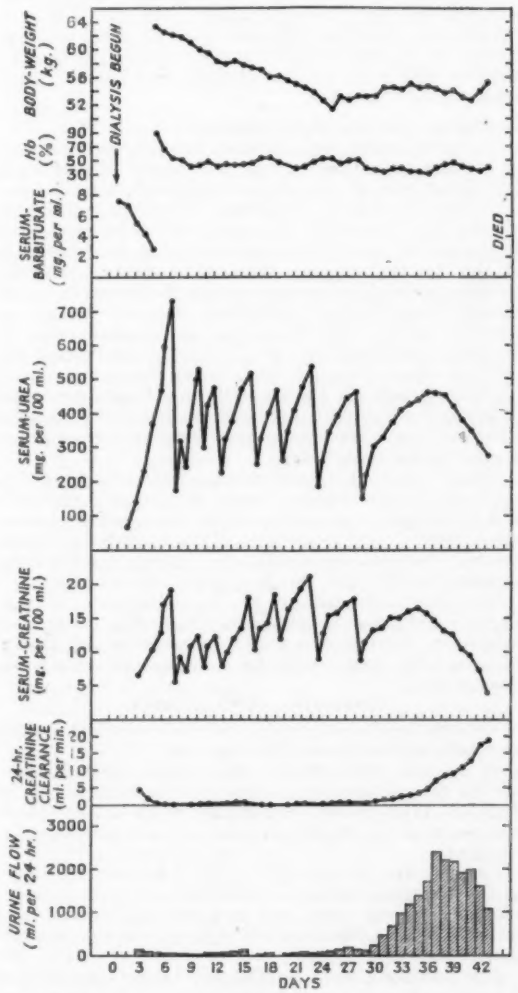

Fig. 2—Case 27: severe poisoning with a barbiturate and a strongly hæmolytic agent.

Anuria with rapidly rising urea-concentration (pronounced katabolism). Highest serum-urea level 726 mg. per 100 ml. Anuria persisted four weeks, and patient was dialysed eight times because of uræmia and hyperkalæmia. Renal function gradually became sufficient, but patient's condition deteriorated, and he died in cachexia.

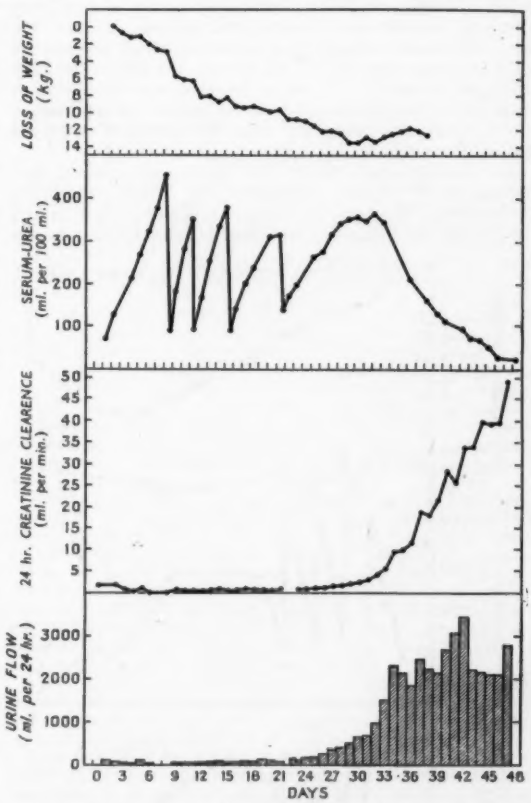

Fig. 3—Case 35: shock after radical operation for uterine cancer.

Renal insufficiency with anuria lasting 33 days. Four dialyses were done. Discharged with almost normal renal function.

Case 35 (fig. 3) underwent a radical operation for uterine cancer. After the operation the patient was shocked for several hours, owing to an arterial lesion which necessitated another operation. The ensuing acute renal failure lasted thirty-three days, and four hæmodialyses were done. She was discharged with almost normal renal function.

Case 31 (fig. 4) had a post-abortum anuria and septicæmia and was admitted in an extremely bad condition dominated by acute anoxia due to uræmic wet lungs. Hibernation at 34°C and intratracheal postive-pressure ventilation were necessary for several days. Only by dialysis was it possible to dehydrate the patient sufficiently to restore normal pulmonary function. After two weeks' anuria, during which the patient was dialysed four times, her renal function gradually increased, and two months later she was discharged with almost normal renal function.

Group III

This group comprises 4 patients with anuria later proved to be due to acute exacerbations of chronic pyelonephritis and 1 patient with acute glomerulonephritis. The immediate effects of dialysis on the symptoms of uræmia were good, but only the patient with acute glomerulonephritis survived for more than a few weeks.

Group IV

This group comprises 6 cases of poisoning, with either no or only slight uræmia. When severe bromide poisoning is treated conservatively, several weeks are required to decrease the bromide concentration below the toxic

level. In this condition hæmodialysis has proved very effective (Merrill and Weller 1952, Gjørup 1955). We have dialysed with excellent clinical effect 2 patients with bromide poisoning. In 1 case the serum-bromide level fell from 41 to 4 m.eq. per litre, and in the other from 25 to 3 m.eq. per litre in the course of dialyses of a few hours' duration. No untoward effect of the rapid fall in the serum-bromide level was observed.

In contrast with other barbiturates in general use, barbitone is chiefly eliminated by renal excretion; consequently the combination of barbitone poisoning and renal failure is difficult to treat conservatively (Clemmesen 1955, Lous 1955). We have dialysed 2 such cases with good results; both patients woke up during dialysis.

Finally, a patient with severe hyperkalæmia (due to overdosage with potassium) and slight renal failure was dialysed. His extremely pathological electrocardiogram became normal during the dialyses, and his clinical condition improved dramatically.

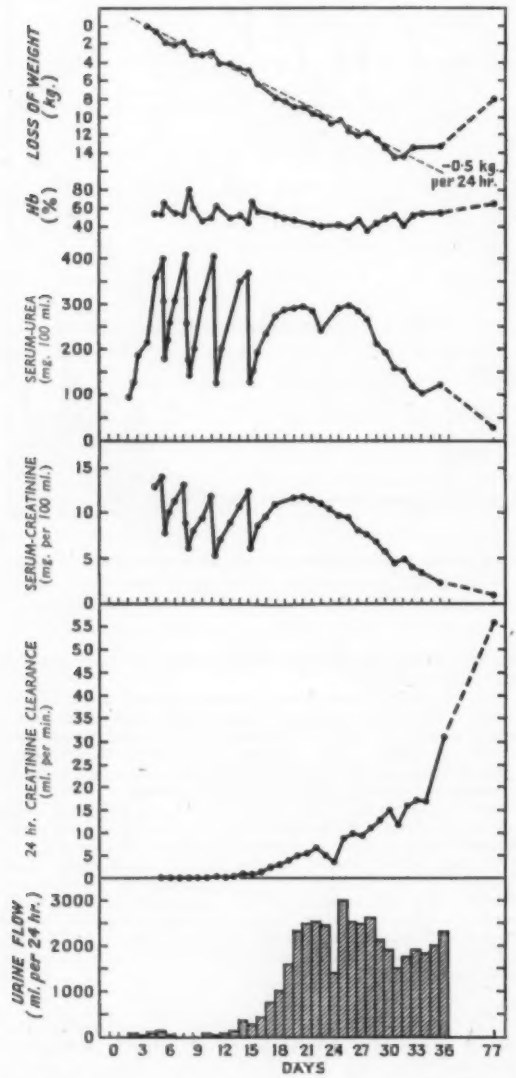
LOSS OF WEIGHT (kg.)
-0·5 kg. per 24 hr.
Hb (%)
SERUM-UREA (mg. 100 ml.)
SERUM-CREATININE (mg. per 100 ml.)
24 hr. CREATININE CLEARANCE (ml. per min.)
URINE FLOW (ml. per 24 hr.)
DAYS

Fig. 4—Case 31: acute renal failure and uræmia after septic abortion with hæmolysis and shock.

Pronounced uræmic lung changes with pulmonary insufficiency leading to low arterial oxygen saturation. Treated with intratracheal positive-pressure ventilation, hibernation, and four hæmodialyses. By ultrafiltration during the first two dialyses the uræmic lung changes were eliminated. After 14 days' anuria renal function improved. Clinical course was complicated by sepsis and severe infection of urinary tract, successfully treated by intensive chemotherapy.

Discussion

In the present patients with severe uræmia due to acute renal failure the mortality was very high, only 11 of 35 patients surviving (groups 1 and 2). It might therefore be asked whether hæmodialysis is of any therapeutic value at all. In answering this question it should be realised that nearly all the present patients would have died if conservative treatment of anuria had been applied alone.

Few reports of consecutive patients treated with hæmodialysis have been published. The only one comparable with ours was published from the renal centre in Korea (Smith et al. 1955) and comprises 31 dialysed patients with acute anuria following war lesions. 10 of these patients survived.

Indications and Contra-indications

In the beginning our indication for dialysis of patients with acute renal failure was pronounced clinical signs and symptoms of uræmia—clouding of consciousness, muscular fibrillation, diarrhœa, vomiting, pulmonary œdema, &c.—developing despite conservative treatment. In the past six months we have dialysed at an earlier stage of the disease, because thus the patients avoid the complications of prolonged uræmia (tendency to bleed, cardiac irregularities, infections, delayed healing of wounds, water and electrolyte disturbances due to diarrhœa and vomiting, &c.). During this period the patients were dialysed when their serum-urea level reached 400 mg. per 100 ml. The most impressive result of this new policy is that it has been possible to keep the patients in an astonishingly good condition even during several weeks' renal failure.

When dialysis is done by a trained team with suitable apparatus, early dialysis seems to decrease the risks and to shorten convalescence even in moderately severe cases which might recover without dialysis. Other centres have recommended early dialysis for the same reasons (Merrill 1952, Hamburger and Richet 1956).

The contra-indications to hæmodialysis are few. Persistent or recent large internal hæmorrhage is the most important. Furthermore it is our experience that elderly patients with degenerative heart-disease do not tolerate dialysis well.

Summary and Conclusion

The results of about two years' work with the Skeggs-Leonards artificial kidney are reported.

46 patients were treated with seventy-eight dialyses. Of the 35 patients with acute renal failure who were dialysed 11 survived, and undoubtedly hæmodialysis was essential to, or played an important part in, their recovery.

Conservative therapy is still the fundamental principle in the treatment of acute renal failure; but it is not enough in severe cases, and in moderately severe cases early dialysis can decrease the risks of complications and shorten convalescence.

The patients should be dialysed before they present clinical signs and symptoms of uræmia. In most cases this means that dialysis should be done before the serum-urea level exceeds 400 mg. per 100 ml.

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TREATMENT OF BLACKWATER FEVER WITH PREDNISONE

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UGANDA MEDICAL SERVICE

THE third report to the Medical Research Council by the panel on the hæmatological applications of corticotrophin (A.C.T.H.) and cortisone (Medical Research Council 1955) stated that "favourable responses, including complete remissions, were obtained in a high proportion of patients with acquired hæmolytic anæmia." In fact the report showed 39 remissions among 48 patients, and it was suggested that with higher dosage the results might have been better. The series included 36 cases of primary hæmolytic anæmia and 12 where the anæmia was secondary to other conditions, but none of the latter suffered from blackwater fever.

While the exact cause and mechanism of blackwater fever is still somewhat obscure, there can be little doubt that it should be regarded as an acute acquired hæmolytic anæmia occurring only in patients who have had malaria. Hence a trial of corticotrophin or cortisone seems abundantly justified. As long ago as 1953, Linley-Adams reported the case of a child whose condition seemed hopeless but who recovered after receiving cortisone. Porte (1954 and 1955) reported 2 cases of blackwater fever which he had treated with cortisone. His dosages of cortisone—namely, 350 mg. in three days for the first case and 700 mg. in six days for the second—were small by the standards now recommended by the Medical Research Council report. Both cases did well though the response in the second was slow. Several other drugs were given which may have affected the issue.

The present series of 5 comprises all the recent cases in Kampala Hospital of this condition, which is now no longer common in East Africa. For this reason controls have not been possible; but the results appeared sufficiently satisfactory, prompt, and consistent to justify putting them on record pending further experience.

In every case the diagnosis was established by the presence of methæmalbumin in the serum detected spectroscopically. As far as possible other remedies which might influence the course of the disease were withheld, though it is difficult to get patients before at least some chloroquine has been given.

Prednisone, which is closely allied chemically and pharmacologically to cortisone, was used because it is claimed to have the same anti-anaphylactoid effect as cortisone without producing electrolyte imbalance. Its dosage is smaller than that of cortisone so that 10 mg. of prednisone is roughly equivalent to 50 mg. of cortisone.

Blackwater fever is essentially a variable disease, but in Uganda as elsewhere (Maegraith 1948) carries a mortality of 20–30% in both Europeans and Asians. Both of us have seen many cases over a period of many years. All those in the present series were severe, and some very severe: but the toxic clinical state improved within a few hours of administering prednisone and the urine cleared within a few days, and sometimes sooner. Although no measure can be offered of the clinical improvement, it was in all cases very striking, at least to those accustomed to this disease.

Case-histories

Case 1.—A Ganda African, aged about 60, had an operation at Mulago Hospital on Sept. 13, 1955, for strangulated hernia. For three days he did well and passed normal-coloured urine, but on Sept. 16 he had a rigor, temperature 103°F, pain in the back, and severe vomiting, and passed dark reddish urine containing bilirubin, much protein, and much deposit but no cells.

When seen by one of us (H. C. T.) on the 19th he was in profound stupor, with continuous high fever for three days, deeply jaundiced eyes, pulse-rate 130, blood-pressure (B.P.) 95/45 mm. Hg, and spleen and liver palpable and tender. The urine was dark red. Blood-smear showed no malaria parasites. Serum-bilirubin 7·0 mg. per 100 ml., methæmalbumin and oxyhæmoglobin detected spectroscopically. Urine very dark. Methæmoglobin and oxyhæmoglobin detected spectroscopically in the urine. Hæmoglobin was 5·0 g. per 100 ml.; red blood cells 1,700,000 per c.mm.

As there was little vomiting, fluids and prednisone 60 mg. were given by gastric tube. No other drugs were given at this stage. Next day (Sept. 20) the patient was conscious: temperature 101°F; pulse-rate 120 per min.; B.P. 105/55; hæmoglobin 6·1 g. per 100 ml.; red blood cells 1,800,000. The urine was clear; traces of oxyhæmoglobin were found spectroscopically. Prednisone 40 mg. was given, and the subsequent course was satisfactory; jaundice cleared in six days and the hæmoglobin rose to 10·2 g. per 100 ml. The wound healed and he was discharged on the fourteenth day.

The original operation had included resection of gangrenous gut and the transfusion of one pint of group O blood. As there was an interval of more than 72 hours before hæmolysis began, we consider that it was not due to incompatible blood.

Case 2.—An Asian aged 23 was admitted to Asian Hospital, Kampala, on Jan. 20, 1956, with fever for two days, treated with quinine (gr. 5 t.d.s.), mepacrine, and penicillin. He had started passing dark red urine on the day of admission. There had been similar attacks previously and a brother had died of blackwater fever.

Temperature 100°F; pulse-rate 112; B.P. 120/80; spleen felt but not liver. Urine almost black; methæmoglobin found spectroscopically. Hæmoglobin 14·0 g. per 100 ml.; red cells 4,800,000 per c.mm.; white cells 8400 (54% neutrophils, 8% eosinophils, 34% lymphocytes, 4% monocytes).

He was treated with prednisone 10 mg. thrice daily on the first day and then twice daily for six days. On Jan. 21 the urine was almost clear but contained much albumin. On Jan. 22 it was clear, and no hæmalbumin was found in the serum. He was discharged cured.

Case 3.—An Asian aged 40 was admitted on Dec. 29, 1955, to Asian Hospital, Kampala, after a month's indefinite febrile illness treated with sundry injections, mostly penicillin and mepacrine. For three days he had vomiting and high fever, and on the day of admission he passed dark reddish, almost black, urine. Many previous attacks of malaria and one of blackwater fever in 1942.

Temperature 102°F; pulse-rate 130; B.P. 100/65. Liver and spleen not palpable. Urine and serum contained methæmoglobin spectroscopically. Hæmoglobin 10 g. per 100 ml.; red cells 3,800,000. No malarial parasites seen.

He was treated with prednisone 10 mg. b.i.d. for six days and an intravenous drip of saline and glucose. On the second day the urinary pigments were reduced to a faint trace; he was discharged cured.

Case 4.—A Ganda African girl of 6 years was admitted on March 18, 1956, to Mulago Hospital with black urine, fever, headache, limb pains, and vomiting.

Temperature 101°F; pulse-rate 132; B.P. 100/50. Jaundiced. Heart and lungs clear, spleen palpable but not liver. Urine coffee-coloured, containing much protein, bile, and oxyhæmoglobin (shown spectroscopically). Hæmoglobin 4·8 g. per 100 ml.; red cells 1,730,000 per c.mm. Methæmalbumin demonstrated spectroscopically in the serum.

She was treated with abundant fluids and prednisone (20 mg. on first and second days, 10 mg. on the third). One

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injection of chloroquine was given at the onset. Blood pigments cleared from urine within twenty-six hours of starting prednisone. She was discharged cured.

Case 5.—A Ganda African boy aged 18 months had had irregular treatment with quinine, and had now been ill for three days with fever and dark urine. At the onset there was diarrhœa, but his general condition remained good, and he was treated with 'Aspro,' but on the day of admission he became worse and the urine became dark red.

Temperature 100°F; slight icterus and coryza. Liver and spleen palpable. Urine dark reddish-brown, showing much protein, and both oxyhæmoglobin and methæmoglobin on spectroscopic examination. A blood smear showed *Plasmodium falciparum*. Serum-bilirubin 2·0 mg. per 100 ml. Hæmoglobin 4·6 g. per 100 ml.; red cells 1,770,000 per c.mm.

He was treated on the day of admission with penicillin 200,000 units and chloroquine 80 mg. without clinical improvement. Next day prednisone 20 mg. was given at 11 A.M. and 10 mg. in the evening. By then the urine was beginning to clear, and next evening it was completely clear. He was discharged cured.

Summary and Conclusions

Five recent consecutive cases of proven blackwater fever are described in which treatment with prednisone was given. The response was prompt and satisfactory in all, and so impressive that even in the absence of controls it seems clear that the drug had a favourable effect on the hæmolytic process. This is in line with the experience of cortisone in other varieties of acquired hæmolytic anæmia.

The use of prednisone or cortisone in the management of every case of blackwater fever is therefore recommended.

We thank the Director of Medical Services, Uganda, for permission to publish this paper.

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ROVSING'S SIGN

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ONE seldom reads an account of the clinical picture of acute appendicitis which does not refer to Rovsing's sign (e.g., Love 1947, Cope 1951, and Bailey 1954). This sign, first described by Rovsing (1907), is positive when manual pressure over the left iliac fossa causes pain in the right iliac fossa and is regarded as almost specific for acute appendicitis. The explanation given by Rovsing, and still accepted, is that gas is squeezed from the pelvic colon by the pressure over it and passes backwards along the colon. The ileocæcal valve prevents this gas from escaping into the small intestine, and so the inflamed cæcum and appendix are distended, causing pain in the right iliac fossa. This explanation has always seemed highly improbable to me, as it did to some of Rovsing's contemporaries. I therefore tried to discover when Rovsing's sign occurs and what are the mechanics underlying its production.

Findings

The first criticism of the explanation of the sign given above is that it is obviously no easy matter to press gas out of one segment of colon into another by pressure through the anterior abdominal wall. If pressure over the pelvic colon can squeeze gas back to the cæcum, pressure over the cæcum should squeeze gas into the pelvic colon. I found that, by moderate pressure in the right iliac fossa, one cannot express gas from a left iliac colostomy; so this gives no support to the belief that pressure over the left iliac fossa will force gas back to the cæcum.

Similarly, it is much easier to compress the pelvic colon during laparotomy than through the abdominal wall. If, at operation, the pelvic colon is held in both hands, a surprising amount of pressure needs to be exerted before gas can be squeezed out of it. Much more force can be applied to the colon held in the hands than can, or should, be directed to the left iliac fossa by palpation; yet, though some gas can be expressed from it, there is no visible change in the size of the cæcum or the appendix.

These observations show that it is most unlikely that pressure over the left iliac fossa produces any distension of the cæcum or the appendix. Rovsing's explanation was also propounded before the causation of abdominal pain was clarified by Morley (1931) and can be criticised as being inconsistent with modern knowledge on this subject. If the cæcum were distended, pain might be increased in the right iliac fossa by increased stimulation of the parietal peritoneum, but it is much more likely that such distension would produce central abdominal pain. Distension of the appendix would almost certainly produce pain in the centre of the abdomen but pain in the right iliac fossa only in the comparatively few cases in which the appendix is lying against the anterior parietal peritoneum. This absence of central abdominal pain strongly suggests that the usual explanation of Rovsing's sign is wrong.

Since Rovsing's sign is present in some cases, another explanation for it must be found. Patients with acute appendicitis and other causes of abdominal pain were studied both before and after operation.

I found that patients with milder forms of acute appendicitis and no more than moderate limited tenderness in the right iliac fossa did not have a positive Rovsing's sign, whereas patients with severe extensive tenderness in the right iliac fossa, due to either severe acute appendicitis or appendicular abscess, generally had a positive sign.

I also found that the sign could be elicited with most certainty after operation through a McBurney incision; but, as the wound healed and tenderness in it disappeared, so did Rovsing's sign disappear.

Patients with right-sided pyelitis, salpingitis, ectopic pregnancy, or psoas abscess were also examined. None of these had severe tenderness, and in all of them the sign was negative. Only one patient had severe tenderness, not due to acute appendicitis, in the right iliac fossa. He was a boy, aged 10 years, with right lower lobar pneumonia, and his pain in the right iliac fossa was made worse by pressure in the left iliac fossa and in the epigastrium. There was never any suspicion that this boy had an abdominal lesion, and next day all the abdominal signs had disappeared. This indicates that Rovsing's sign is not specific to appendicitis.

Conclusions

These observations show that Rovsing's sign occurs only when there is severe or diffuse tenderness in the right iliac fossa, not necessarily due to an appendicular lesion. When the tenderness is slight, the sign is absent. The explanation suggested is as follows. Pressure over the left iliac fossa increases tension in the structures in the abdominal wall of the right iliac fossa. If these structures are normal, no pain is felt in them. If the parietal peritoneum is slightly irritated over a small area by a lesion such as mild acute appendicitis, the pressure in the left iliac fossa is insufficient to affect either the involved peritoneum or the slight rigidity of the muscles. If there is a recent McBurney incision, the structures sutured are very sensitive to an increase of

tension and so register pain when pressure is made over the left side. Similarly, if the peritoneum in the right iliac fossa is widely or severely involved, or the muscles there are rigid, then these structures are highly sensitive to increased tension and feel pain in response to pressure in the left iliac fossa. In these latter cases pain can be produced in the right iliac fossa by pressure in other parts of the abdomen, such as the epigastrium. Here one would not expect to be pressing upon the colon but rather increasing tension in muscles and peritoneum.

It therefore seems that Rovsing's sign occurs only in cases in which there is fairly severe and widespread tenderness in the right iliac fossa, whatever the cause, but is absent in cases with mild and limited tenderness. It is not specific to acute appendicitis and does not help the diagnosis. It is an indirect method of estimating the amount of tenderness in the right iliac fossa. Since this can be measured much more easily and accurately by direct palpation, I suggest that the time has come for this sign to be abandoned.

Summary

The incidence of Rovsing's sign in right-sided acute abdominal lesions was investigated.

No evidence was found to support the usual explanation that gas is pressed from the pelvic colon and distends the cæcum and appendix.

It is suggested that a positive sign is due to an increase of tension in the peritoneum and muscles of the right iliac fossa.

The sign is only an indirect method of estimating tenderness in the right iliac fossa and, having no diagnostic value, should be given up.

I wish to thank Dr. I. R. Hadelmayr for help in translating the German articles.

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PHÆOCHROMOCYTOMA WITH NORMAL EXCRETION OF ADRENALINE AND NORADRENALINE

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INCREASED urinary secretion of adrenaline and noradrenaline has been used to confirm the diagnosis of phæochromocytoma (Engel and Von Euler 1950, Goldenberg 1951, Lund 1952, Burn 1953, Hamilton et al. 1953). The test has been applied successfully in cases with either sustained or paroxysmal hypertension (Hamilton et al. 1953) and has perhaps come to be accepted as the final step in establishing the diagnosis.

We feel justified, therefore, in recording the following case in which a phæochromocytoma was associated with typical attacks of paroxysmal hypertension and the excretion of pressor amines was within normal limits. The original diagnosis was made by Dr. D. Brinton.

Case-report

A man, aged 39, was admitted to hospital in November, 1955, with six years' history of peculiar attacks in which his hands and face went pale and, in a minute or two, his hands started to shake. He sweated and felt excited, as before a fight. He breathed more deeply, and his heart beat forcefully. As the attacks died away, his face flushed. Initially the attacks had come on about once every six weeks and lasted for only one or two minutes, but they had become more frequent in the six months before admission and lasted up to ten minutes, often waking him from sleep. They appeared to be precipitated by stooping or by annoyance, but also came on when he was merely standing about.

Examination

On admission his physical condition was essentially normal, his blood-pressure being 130/88 mm. Hg and heart clinically normal, and no abdominal tumour was felt. Numerous attacks of varying severity were observed in which his fingers, and sometimes his face, went pale; he sweated on brow and neck, and his heart beat more forcibly and more rapidly. His blood-pressure rose from its normal level of 130–140/90 mm. Hg to such figures as 200/120 mm. Hg, falling over five to ten minutes to its initial value, when his face flushed.

Investigations

His urine contained no sugar or albumin. His glucose-tolerance curve was normal, and no change in blood-sugar and serum-potassium levels was observed during an attack. Radiography of the chest and intravenous pyelograms were normal. Electrocardiography showed left-axis deviation.

Diagnosis

The patient's account of his symptoms and the character of the observed attacks strongly supported a diagnosis of paroxysmal hypertension due to a phæochromocytoma, and the amounts of adrenaline and noradrenaline in the urine were estimated because previous experience suggested that this was the most satisfactory method of confirming the clinical diagnosis.

TABLE I—URINARY EXCRETION OF FREE AMINES
(Attacks in all periods)

Day	Amines (μg. in 24 hr.)		Total
	Noradrenaline	Adrenaline	
1	55	30	85
2	50	22	72
3	40	25	65

Estimation of Urinary Pressor Amines

The urine was collected for three separate periods of twenty-four hours during each of which the patient had an attack. It was extracted and assayed biologically as described by Hamilton et al. (1953), and the excretion of adrenaline and noradrenaline was always within normal limits (table I).

The normal upper limit of 100 μg. of free pressor amines per twenty-four hours was established by assay of urine from normal patients and those with essential hypertension (Hamilton et al. 1953, and further personal experience by one of us). This value agrees reasonably well with that reported by other observers (Von Euler and Hellner 1951, Burn 1953, Goldenberg et al. 1954).

On three occasions the urine was collected after an attack, and then for two further periods of equal duration to see whether the excretion of pressor amines was increased immediately after an attack. In two of these episodes there was no increase, and in the third a small increase was associated with a diuresis which might have caused an increased output of catechol amines (table II). Therefore it was impossible to say that the attacks were associated with a significant increase in the urinary pressor amines. The negative result was surprising, but in view of the strong clinical suspicion it was felt that further evidence should be sought.

TABLE II—URINARY EXCRETION OF FREE AMINES AFTER ATTACKS AT 12.30 P.M. AND 1.20 P.M.

Period	Volume of urine (ml.)	Amines (μg.)		Total
		Noradrenaline	Adrenaline	
Noon–2 P.M. ..	550	11	5	16
2 P.M.–4 P.M. ..	120	5	3	8
4 P.M.–6 P.M. ..	80	4	2	6

Further Investigations

Presacral retroperitoneal pneumography was done with subsequent tomography, and Dr. E. Rohan Williams reported that a tumour was probably present in or near the left suprarenal gland.

Intravenous injection of histamine 50 μg. provoked a typical but unusually severe attack, the blood-pressure rising from 120/80 to 210/120 mm. Hg. The patient's face was strikingly pale, his hands trembled, and he had a severe throbbing headache.

Infusions of adrenaline and noradrenaline.—The normal urinary excretion of pressor amines was consistent with a diagnosis of phæochromocytoma only if the tumour was intermittently producing small quantities of adrenaline and noradrenaline to which the patient was normally sensitive. Since the relative proportions of the amines excreted in the urine are the same as those in the tumours in most cases (Engel and Von Euler 1950, Hamilton et al. 1953), infusions of noradrenaline and adrenaline in their urinary proportions of 2 : 1 were given. An attack like a typical spontaneous one was produced by infusing intravenously a mixture of noradrenaline 50 μg. and adrenaline 25 μg. in two and a half minutes. The only difference was that the pulse-rate always became slower, unlike the tachycardia of a spontaneous attack. This suggested that the tumour was probably producing more adrenaline relative to noradrenaline than was found in the urine, because noradrenaline causes reflex bradycardia, whereas adrenaline causes tachycardia (Barnett et al. 1950). The usual percentage of these infused amines which is excreted in the urine is up to 4% (Goldenberg 1951, Von Euler and Luft 1951). When noradrenaline 200 μg. and adrenaline 125 μg. were infused intravenously during two hours, the patient excreted 7% as free amines; hence the increased excretion expected after an attack due to the release of 75 μg. of amines (sufficient to reproduce a spontaneous attack) would be 5·25 μg., which would not be a significant increase and is consistent with the actual findings.

It was decided that exploration of the suprarenal glands was justified.

Operation (Jan. 26, 1956, by Mr. A. Dickson Wright)

A spherical tumour was found with some difficulty in the left suprarenal gland. During the dissection of the gland the blood-pressure rose to 180/120 mm. Hg but dropped to 140/90 mm. Hg when the draining veins were ligated. The left suprarenal gland containing the tumour was successfully removed. The lowest postoperative blood-pressure was 90/70 mm. Hg, and noradrenaline infusion was unnecessary—an observation consistent with a slow rate of secretion by the tumour.

Postoperative Course

Convalescence was uneventful, the blood-pressure being 120/80 mm. Hg on the patient's discharge home nine days later. No further attacks had occurred, and an infusion of histamine 50 μg. caused flushing of the face only, with maximal blood-pressure 115/70 mm. Hg.

The Tumour

The spherical tumour arose from the medulla of the left suprarenal gland, was 2·3 cm. in diameter, and weighed 7 g. It contained adrenaline 10 mg. per g. of wet weight and noradrenaline 4·25 mg. per g. of wet weight. The high proportion of adrenaline supported the idea that the symptoms and signs in attacks were mainly due to this substance—e.g., the tachycardia discussed above.

Postoperative Assay of Urine

A twenty-four-hour sample of urine contained 90 μg. of adrenaline and noradrenaline in the proportion of 1 : 4. This emphasises the normal nature of the preoperative assays.

Discussion

From the results in this patient it is clear that the type of case with intermittent production of small amounts of pressor amines to which the patient remains normally sensitive may have a urinary excretion within normal limits, even when the urine is collected after an attack. The additional reasons why this test is theoretically not ideal are: (1) the small percentage of adrenaline and noradrenaline excreted in the urine; (2) the wide range of normal excretion (from 10 to 100 μg. as free amines per twenty-four hours), making it possible to have a tenfold increase in the excretion without exceeding the upper limit of normal.

This case re-emphasises the necessity for abiding by the clinical diagnosis, especially if a typical attack of hypertension with pallor is observed. The provocation of an attack with histamine, despite the occasional reports of false positives and negatives (Evans et al. 1951), may then prove very helpful, as in the present case.

These statements are only intended to indicate a proper caution in the interpretation of this test, because it has proved very useful in confirming the diagnosis of phæochromocytoma (Engel and Von Euler 1950, Goldenberg 1951, Hamilton et al. 1953) and is probably the most reliable confirmatory test available.

It remains to be seen whether the test is always positive in cases with sustained hypertension, in view of the persistence of hypertension following removal of the tumours in some patients (Hamilton et al. 1953).

Summary

A patient with a phæochromocytoma, which was subsequently removed at operation, was shown to have a normal urinary excretion of adrenaline and noradrenaline even during typical attacks.

Such an attack was experimentally provoked by histamine.

Normal sensitivity to relatively small quantities of intravenously administered amines was demonstrated.

We are grateful to Mr. N. Oliver for assistance with the investigations.

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SPONTANEOUS RUPTURE OF THE ŒSOPHAGUS

DIAGNOSIS AND SUCCESSFUL MANAGEMENT

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SINCE Barrett (1947) reported the first successfully treated case of spontaneous rupture of the œsophagus, about 200 further cases of this condition have been published. Moynihan (1954) stated that 27 of 134 patients survived the disaster—a survival-rate of 20%. If it is borne in mind that many undiagnosed and fatal cases go unreported, it follows that the success-rate is probably less. However, in the discussion of a paper by Starkey (1955) seven surgeons reported that 11 (38%) of 29 patients survived. The condition is therefore commoner than previously thought, and diagnosis and treatment are probably improving.

This condition appears to be definitely commoner in males than in females; in 100 published cases we found that 86% of the patients were males, mostly in the middle and old age-groups. However, Menne and Moore (1921) reported 1 case and mentioned 3 others in children, and Kennard's (1950) fatal case was in a woman in labour.

The sex and age distribution suggest the ætiology. Moynihan (1954) attributes the rupture to distension of the lower œsophagus due to vomiting, and certainly most instances are associated with this. However, we feel that,

in most cases, the reason for the rupture is that an area of œsophageal wall, which has partially lost its blood-supply owing to arteriosclerosis, gives way under the increased intraluminal tension associated with vomiting, swallowing a large bolus, straining at defæcation, or in any of the other circumstances which have been reported.

Diagnosis

The condition should be suspected strongly if a middle-aged or elderly man presents with intense upper abdominal or lower chest pain which has begun after vomiting. The pain is very severe and unrelieved by morphine and is due to mediastinitis. If the collection of fluid in the mediastinum has ruptured into the pleura (almost invariably the left), the pain may be worse on coughing or on deep inspiration.

In typical cases a triad of physical signs may be detected; tachypnœa, abdominal rigidity, and surgical emphysema in the neck. It may be possible to elicit the signs of hydrothorax or of hydropneumothorax at the left base.

Obviously the condition is extremely likely to be misdiagnosed as perforated peptic ulcer, and in many fatal published cases fruitless laparotomy has been done. Suspicions should dictate that a straight X-ray film of the chest and upper abdomen be taken. Then, in spontaneous perforation of the œsophagus, either mediastinal emphysema or a pleural effusion will be noted, whereas, with a perforated peptic ulcer, these features will be absent and air will usually be present under one or other lobe of the diaphragm.

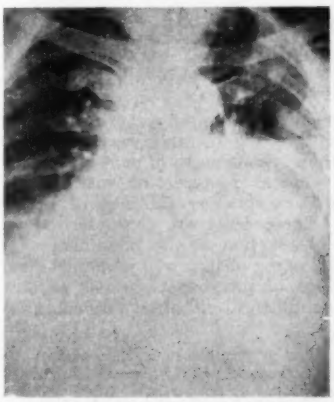

Fig. 1—Chest radiograph twenty-two hours after onset of symptoms showing effusion in left pleural cavity.

O'Donoghue's (1956) patient with perforated duodenal ulcer had surgical emphysema in the neck; but, with a history of indigestion and radiography showing air under the right diaphragm, no difficulty was experienced in making the correct diagnosis. Presumably the patient was an air-swallower.

The condition is hardly likely to be confused with mild coronary thrombosis. Severe thrombosis may simulate the clinical picture; if there is any doubt, electrocardiography should make the correct diagnosis clear.

Finally, a dissecting aneurysm of the abdominal aorta should be differentiated by the presence of a pulsatile mass in the abdomen, with absent, or unequal, femoral pulses.

Case-report

A man, aged 71, was admitted to hospital at 10 P.M. with severe upper abdominal pain, which had developed suddenly eight hours earlier, after he had swallowed a large piece of meat (devoid of bones), which seemed to stick in the lower part of his chest before passing on. There was no vomiting; the patient had tried to make himself vomit but failed. There was no history of indigestion. The appendix had been removed forty-three years earlier.

On examination the patient was very distressed, with temperature 98·6°F, pulse-rate 120, and respirations 28 a minute, tongue dry and furred, blood-pressure 165/105 mm. Hg, and pupils equal and reacting to light and on accommodation. His trachea was central and his apex-beat in the mid-axillary line. There was no valvular disease of the heart nor evidence of pulmonary disease except for a few scattered rhonchi. Both femoral pulses were palpable and equal. The upper abdominal muscles were tender and rigid. No abnormal mass was found, and there were no herniæ. The bowel sounds were absent. A grid-iron appendicectomy scar was present. Rectal examination revealed a few fæces.

Provisional diagnosis: either perforated peptic ulcer or spontaneous rupture of the œsophagus.

Laparotomy.—At 2 A.M. (twelve hours after the onset of symptoms) the abdomen was explored through an upper right paramedian incision. No lesion was found except a loop of slightly obstructed small bowel adherent to the appendicectomy scar. Adhesions were divided to free this loop, and the abdomen was closed by the stainless-steel-wire technique of Abel and Hunt (1948). An aspirating needle was introduced into the left pleura but withdrew neither gas nor fluid; it was decided to proceed no further until the chest could be radiographed on recovery of the patient from anæsthesia.

Fig. 2—Barium-swallow radiograph showing filling defect at site of œsophageal closure (arrow).

Radiography.—Early next morning radiography with a portable X-ray set showed widening of the mediastinum, thought to be due to an enlarged heart, and electrocardiography revealed no evidence of coronary thrombosis. The patient was still in intense pain, and at midday surgical emphysema was evident in his neck, and further radiography showed fluid in his left pleura (fig. 1).

Thoracotomy.—At 4 P.M. (twenty-six hours after perforation) left thoracotomy through the resected eighth rib bed was done. Three or four pints of dark-brown malodorous fluid was evacuated from the pleura, and a necrotic-edged tear 5 cm. long was found in the œsophagus just above the diaphragm. A Ryle's tube was passed upwards, until retrieved by the anæsthetist from the pharynx, and downwards into the stomach. The œsophagus was then hurriedly closed with a single continuous catgut suture because the patient's condition was giving rise to anxiety. A large drainage tube was inserted through the tenth interspace to the site of the closure, and the thoracotomy incision was closed with two layers of continuous chromic catgut for the muscle and continuous thread for the skin. The drainage tube was connected to an underwater-seal drain.

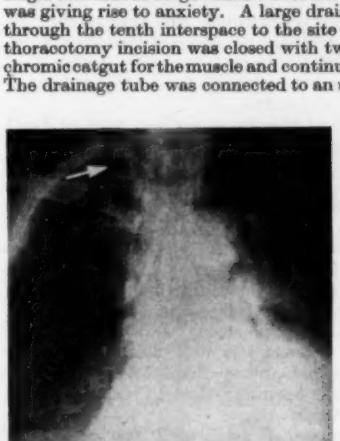

Fig. 3—Chest radiograph at nineteen hours. Arrow indicates edge of superior mediastinum clearly outlined by air.

Postoperatively penicillin therapy was started, and two pints of blood was given. Underwater drainage was maintained for four days. Not unexpectedly, there was a salivary leak through the drainage tube, but feeding via the Ryle's tube was started after forty-eight hours. The drainage tube was removed on the tenth day, and the sinus gradually closed and was dry by the end of the fourth week. Three months later the patient was fit and eating well. A

barium swallow (fig. 2) revealed a filling defect at the lower end of the œsophagus at the site of closure.

COMMENT

The clinical features in this case were so typical that the condition was suspected preoperatively. When the findings at laparotomy did not appear to explain the symptoms fully, aspiration of the chest was attempted. The first chest radiograph (nineteen hours after onset) showed no pleural effusion, and at this stage the patient had mediastinitis only. This film (fig. 3) was, however, misinterpreted by us, and it clearly showed surgical emphysema at the root of the neck. The second chest radiograph (twenty-three hours after onset), however, revealed a hydropneumothorax; evidently the mediastinal contents had ruptured into the pleura between the taking of these two films.

The surgical emphysema became clinically evident only between the eighteenth and twenty-second hours. Comparison with published cases shows that there is a wide variation in the time of clinical onset of surgical emphysema in the neck.

The earlier the operation and the fitter the patient, the more time and care should be taken in closing the perforation. Nevertheless, many of the recorded recoveries have followed inadequate closure; in some successful cases suture was not attempted, a large drainage tube being left in the pleura to the site of perforation.

Suggested Plan of Management

If the diagnosis of spontaneous rupture of the œsophagus is suspected preoperatively by reason of the clinical features mentioned above, the chest and upper abdomen should be radiographed. If there is still doubt, an iodised-oil swallow (Foggitt 1946) will show leakage of the contrast medium into the mediastinum.

When a diagnosis has been made, there should be no hesitation in doing left thoracotomy through the bed of the resected eighth rib. General endotracheal anæsthesia is preferable; but, if the patient's general condition is desperate, local anæsthesia combined with the administration of pure oxygen through a face-piece can be used. Needless to say, the rare instance in which the œsophagus has ruptured into the right pleura necessitates right thoracotomy. Providing the patient's condition permits (and it will be found to improve once the pleura is drained of its semipurulent fluid), the tear should be sutured carefully. A large drainage tube should be placed to the site of the tear in every case, irrespective of whether suture has been possible, and attached to an underwater drainage apparatus.

On the other hand, if the diagnosis has been at fault and a laparotomy has been done, the occasion is one for boldness, because the patient is doomed if surgical treatment is not attempted. It is permissible to introduce an aspirating needle into the left pleural cavity for diagnosis through a lower rib space in the anterior axillary line, and also through the diaphragm via the peritoneal cavity. The laparotomy incision should be converted into a thoracotomy by extending it through the costal margin and resecting either the seventh or the eighth rib as in total gastrectomy and in œsophagectomy. All that is necessary is to extend the incision laterally at its upper end and to divide the diaphragm back to its œsophageal opening. The lower œsophagus can now be sutured easily.

This operative approach is facilitated if a sandbag is placed under the left lower ribs posteriorly, and it is an even greater advantage if a table is available which tilts laterally.

Conclusions

Spontaneous perforation of the œsophagus is being encountered increasingly. It occurs predominantly in males, particularly the elderly and middle-aged, but no age or sex is exempt.

The differential diagnosis is from perforated peptic ulcer, coronary thrombosis, and dissecting aneurysm of the aorta (in that order of frequency).

Surgical treatment offers the only hope for the victim of this catastrophe and should be attempted in every instance through either a thoracic or an abdomino-thoracic approach.

The results of such treatment are improving.

We are indebted to Mr. A. Lawrence Abel for permission to treat the patient and to publish the case-report, to Dr. B. Coden and Dr. M. Hudson for the anæsthesia, and to Dr. D. Hector-Jones for the radiographs.

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DIAGNOSIS AND TREATMENT OF PRIMARY INTRAHEPATIC CHOLESTASIS

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IN cases of jaundice with impaired excretion of bile the cause is regarded as either intrahepatic damage or extrahepatic obstruction. Some cases of acute jaundice, however, show the clinical features of intrahepatic damage associated with laboratory findings of extrahepatic obstruction. These cases are characterised by (1) no demonstrable obstruction of the bile-ducts; (2) laboratory findings indicating obstructive jaundice; and (3) histological evidence of intrahepatic stasis of bile. The diagnosis is always difficult, and often surgical intervention is necessary.

Naunyn (1919) described a similar condition under the name of *Cholangie*, and Siegmund (1931) named it primary intrahepatic cholangitis. Other synonyms are cholangiolithic hepatitis, cholangiohepatitis, and primary intrahepatic cholestasis.

Intrahepatic cholestasis has been reported as caused by poisoning by arsphenamine (Hanger and Gutman 1940) and methyltestosterone, and recently observed as a side-effect of chlorpromazine treatment, in which the symptoms can be so confusing that surgery is indicated.

Johnson and Doenges (1956) emphasise the viral ætiology of intrahepatic cholestasis. Viral hepatitis mostly causes hepatic damage, but in a few cases it gives rise only to signs of obstructive jaundice. In these cases the histology of the liver is normal, but obstruction of the small bile-ducts and periportal lymphocytic infiltration are found.

Obstruction of the bile flow has been found in 26% of cases of acute hepatitis, but from clinical experience it must be regarded as rare. A proved case of intrahepatic cholestasis probably of viral origin must be of interest. We believe that it can be diagnosed by applying certain laboratory tests and by the response to corticotrophin.

Case-report

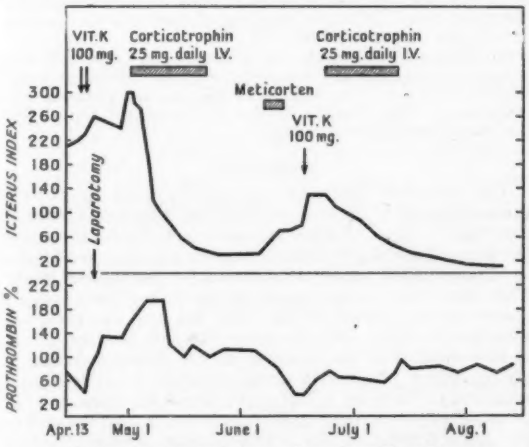
A lumberman, aged 42, who had previously been healthy, began to have nausea, abdominal pains, and increasing jaundice in February, 1956. Since there was an epidemic of acute hepatitis in the neighbourhood, he was presumed to have this disease; but after a month his condition was much worse, and he was admitted to hospital on April 11. He had not had any medicine before the onset.

On admission he was very icteric, with itching of the skin. His liver was felt 5 cm. below the right costal margin. Otherwise general examination was negative. His urine was dark and contained bile.

Diagnosis and Investigation.—Our first diagnosis was infectious hepatitis. The icterus index was above 200, but the thymol test, the Takata reaction, and the serum-iron level were normal. The prothrombin was 73%. The fæces contained no blood, and radiographs of the stomach and the gall-bladder region were normal. After a few days the icterus index was increasing, with a simultaneous fall of the prothrombin value to 38%. Administration of vitamin K promptly raised the prothrombin content to normal.

Operation.—The patient thus showed distinct signs of extrahepatic jaundice; and, as the symptoms increased, laparotomy became necessary; but at operation nothing pathological was found in the gall-bladder, bile-ducts, or pancreas. The consistence of the liver was harder than usual but otherwise normal. The surgical diagnosis was hepatitis in spite of the results of the liver-function tests. A liver-biopsy specimen showed normal structure with lymphocytic infiltration of the perilobular fibrous tissue and signs of retention of bile.

Postoperatively the icterus index increased to 300, and on the ninth day the patient nearly died. In desperation he was given corticotrophin 25 mg. in intravenous drips daily. His condition changed miraculously from day to day, and in twenty days the icterus index decreased to 40. He received altogether 525 mg. of corticotrophin (see figure). A fortnight



Treatment, icterus index, and prothrombin values.

later the icterus index started to increase again and reached 130. The prothrombin value decreased simultaneously but was raised to normal as easily as before by simply injecting vitamin K. Prednisone was now tried, initially 40 mg. a day, but had no effect. A new course of corticotrophin injections produced the same good effect as before. The patient was discharged in excellent condition after four months and with signs of normal liver function.

Discussion

Retrospectively this case showed all the clinical and laboratory features of primary intrahepatic cholestasis. An epidemic of viral hepatitis had broken out in the neighbourhood, and the patient's symptoms during the first weeks did not differ from those of acute hepatitis. But, whereas the other cases of hepatitis were cured within a few weeks, our patient's condition became worse, ending in hepatic coma. In desperation corticotrophin was tried. At that time we were not aware of the report of Johnson and Doenges (1956); our attempt was entirely empirical. We already knew that corticosteroids did not influence the course of extrahepatic obstructive jaundice (Solem and Olsen 1953).

Solem (1956) has dealt with the value of corticotrophin in the diagnosis of jaundice. In 18 cases of acute hepatitis he found a sharp decrease in icterus index within four or five days of giving corticotrophin, and no significant change during corticotrophin treatment in 12 cases of extrahepatic jaundice verified at operation. The favourable effect of corticotrophin in hepatitis is presumably due to an anti-inflammatory effect on the liver-cells. In intrahepatic cholestasis corticotrophin probably relieves œdema of the periportal fibrous tissue which has been compressing the smallest bile-ducts.

The favourable effect of corticotrophin was very surprising. The laboratory findings excluded acute hepatitis and laparotomy excluded extrahepatic jaundice. The only possibility left was that intrahepatic disease was obstructing the smallest bile-ducts—i.e., intrahepatic cholestasis. This was proved histologically by liver biopsy.

The course and the prognosis of intrahepatic cholestasis are variable, but the disease is regarded as much more severe than most cases of acute hepatitis. The icterus can persist from two to four months or more. Most of the cases regress completely, but biliary cirrhosis (cholangiolithic biliary cirrhosis of Watson) may supervene; in other cases the disease leads directly to hepatic coma and death.

Johnson and Doenges (1956) were the first to try corticotrophin in primary intrahepatic cholestasis. The treatment of acute hepatitis with corticotrophin is well established (Evans et al. 1953, Kirkeby et al. 1955). On the other hand, treatment with corticosteroids is of no value in extrahepatic or surgical jaundice. The effect of corticosteroids in intrahepatic cholestasis of viral origin can therefore be taken as a proof of the infectious ætiology of the syndrome. Cholestasis provoked by chemical agents—e.g., chlorpromazine—does not respond to corticosteroids in the same way.

The effect of corticotrophin combined with the laboratory findings of extrahepatic jaundice gives us the clue to medical treatment of primary intrahepatic cholestasis. The most reliable laboratory method of proving the extrahepatic origin of a jaundice is, in our opinion, the prothrombin test. In acute hepatitis with hepatic damage vitamin K does not increase the prothrombin content of the blood, whereas in extrahepatic jaundice it does so promptly. Therefore the combination of a positive prothrombin test of the blood and the therapeutic effect of corticosteroids may prove the existence of primary intrahepatic cholestasis. If, in such cases, a cure is going to be produced, it will be manifest in eight to ten days. We give 25 mg. of corticotrophin daily in intravenous drips of glucose as the most convenient and efficacious form of treatment.

Summary

A case of primary intrahepatic cholestasis is reported. The disease responded very well to corticotrophin.

The increase of prothrombin after the injection of vitamin K, in combination with the effect of corticotrophin, is the most reliable way of diagnosing intrahepatic cholestasis.

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SEVERE TOXIC REACTION TO HYDRALLAZINE

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THE introduction of new chemical compounds for the treatment of disease sometimes precedes full knowledge of dangers attending their use; and it is only when these are fully realised that the advisability of using a drug in any particular case can be truly assessed. The recent introduction of the peripherally acting hypotensive agent hydrallazine ('Apresoline,' Ciba) has, according to some authorities (e.g., Schroeder 1954), extended the control of hypertension by drugs, and although it has not met with general acceptance in this country (Khan 1953, Harris and Turner 1954) it is often used. Accounts of toxic reactions have been reported from America, but we cannot trace any similar record in British medical literature.

Case-report

In 1952 a man, aged 40, admitted for investigation of persistent diarrhœa, was found to have idiopathic steatorrhœa and some impairment of renal function, presumed to be nephritic. During the next four years, though some enlargement of the liver was noted, his general condition remained satisfactory; but renal-function tests showed progressive deterioration, and by April, 1956, he had developed moderately severe hypertension (blood-pressure 225/125 mm. Hg) and was in early cardiac failure. He was seen as an outpatient and, since little improvement followed rest in bed, his doctor was advised to treat the hypertension with 'Serpasil' 0·25 mg. b.d. and apresoline 12·5 mg. q.i.d.; after a week the dosage of apresoline was doubled. Three weeks later the blood-pressure had fallen only slightly, but the patient complained of a trembling sensation and looseness of the bowel after taking the hypotensive drugs. Treatment with apresoline and serpasil was therefore stopped. The patient was prescribed a salt-free diet to minimise the œdema which had now appeared, and admission for further investigation was arranged.

On admission on June 3, 1956, he complained of great lassitude, loss of weight and appetite, and soreness down the front of both legs from the knees to the ankles. He was apathetic, looked very ill, and was dyspnœic even on mild exertion. It was obvious that he had lost weight. He had an enlarged liver and slight weakness of his left leg. His blood-pressure had fallen to 130/95 mm. Hg and he had pyrexia. Examination of his blood showed Hb 87%, mean corpuscular hæmoglobin concentration (M.C.H.C.) 30%, and white cells 10,000 per c.mm.

Progress.—A high swinging temperature persisted for the next three weeks. No infective lesion was found to explain the pyrexia, which did not respond to penicillin, aureomycin, or streptomycin and isoniazid. About a week after admission a petechial rash appeared on the patient's trunk. Hess's test was positive, but the bleeding, clotting, and prothrombin times were normal. The platelet-count was 31,000 per c.mm., Hb 82%, and white-cell count 5000 per c.mm. A blood-film showed normochromic red cells and only slight anisocytosis but some small dense erythrocytes and some target cells, occasional normoblasts, and an increased proportion of juvenile neutrophils. Platelets were virtually absent. Marrow smears were hyperplastic and showed some disturbance of red-cell formation, with occasional macronormoblasts. No abnormality was noted in the maturation of the white cells, and megakaryocytes were present. Plasma cells were found in small numbers. Transfusion of 1 pint of 48-hour-old blood on June 9, had little effect. The purpura continued, and Hess's test remained positive till the beginning of July. Platelet-counts during this period were persistently low, most of them being less than 20,000 per c.mm. On June 21 the Hb had fallen to 55% and the white cells to 3600 per c.mm. The appearance of a blood-film was substantially unaltered. The amount of Hb continued to decrease, and was 50% on June 26. There was no blood-loss, icterus, increased urinary urobilinogen, or positive Coombs test to indicate obviously increased destruction of blood as the cause of the decreased amount of Hb, and the M.C.H.C. remained normal throughout. The patient continued to be gravely ill.

By the beginning of July his temperature had subsided, and his blood-pressure, which had remained low throughout the acute phase of his illness, had risen to 150/115 mm. Hg. His condition had improved, but he still looked pale and unwell, with much wasting. On July 4 the packed cells of four pints of blood were transfused, and by July 8 the Hb had increased to 100% and the white cells to 8600 per c.mm. Examination of the marrow showed no new features; plasma cells were scanty. Thereafter the patient improved progressively and was discharged on July 21.

Biochemical Abnormalities.—During the pyrexial period considerable biochemical abnormalities were present, and renal function was much depressed, the Van Slyke urea-clearance test being only 25% of normal. The blood-urea level was raised (56–150 mg. per 100 ml.), and slight albuminuria was present; the serum-albumin level fell to 3·3 g. per 100 ml. and the serum-globulin level rose to 2·8 g. per 100 ml., electrophoresis showing a slight increase of α_2 and β globulins; the serum-sodium level was very low; and the potassium, calcium, and chloride levels lowered to a lesser extent. On June 6 an electrocardiogram was compatible with potassium deficiency, and on June 19 Chvostek's sign was positive. There was gross lipæmia. The lipoid phosphorus level in the plasma was 19·0 mg. per 100 ml., and the fatty-acid level in the plasma was 1420 mg. per 100 ml. The general character of the illness suggested disseminated lupus erythematosus, and defibrinated venous blood was examined twice for the presence of L.E. cells without success.

At follow-up in August the patient was very well and gaining weight, the Hb was 98%, and the white-cell count 10,000 per c.mm. In September his general progress was maintained; the platelets numbered 410,000 per c.mm., and the blood-film appeared normal.

Discussion

The tentative diagnosis was disseminated lupus erythematosus, and this now seems highly significant because the "late" type of toxic reaction to hydrallazine takes the form of a collagen disease bearing a close resemblance to disseminated lupus erythematosus (Schroeder 1954). This, however, was not known at the time of the patient's illness or even subsequently, when his case was reviewed after his recovery and the drug was first suspected. It is now clear that the features of the illness coincide at almost every point with those reported in hydrallazine sensitivity. Thus an initial pyrexia and an excessive fall of blood-pressure, even down to normal levels, are said to be characteristic of the "late" toxic effects (Morrow et al. 1953). Lassitude is also common. Anæmia and leucopenia are not uncommonly produced by hydrallazine, but in only one previous case has pancytopenia been reported (Kaufman 1953). In our patient the amount of hæmoglobin decreased at a rate of over 2% a day, but there was no obvious evidence of a hæmolytic process, and although there was leucopenia this was too slight to be reflected in significantly abnormal differential proportions of the white cells. Examination of the sternal marrow, as in Kaufman's (1953) case, showed less apparent abnormality than did the peripheral blood, but there was evidence of disturbed red-cell formation, and we regard the anæmia as chiefly dyshæmopoietic in type. The electrolyte disturbances seen in this patient were not characteristic of renal failure. In congestive cardiac failure hydrallazine may produce increased excretion of sodium and a low-salt syndrome (Goodman and Gilman 1955), and we attribute the considerable reduction in the serum-sodium level to this.

Unusual features in the present case were the rapid onset, the small total dose, and the absence of prodromal acute arthritis. Perry and Schroeder (1954) found late toxic effects in 8% of their patients, after a period of hydrallazine therapy varying from two to twenty-two months and with a total dose of 25–230 g. The experience of Dustan et al. (1954) and of Kaufman (1953) is similar.

In the present case the patient was exposed apparently to a total of only 2·3 g. in the course of a month, and acute illness was present six weeks after the start of therapy. Although there was no history of a prodromal phase resembling acute rheumatoid arthritis, the patient complained of pains in his legs and may have had arthritis. Despite these differences the similarity of the present case to others previously reported is outstanding. Rapid recovery followed withdrawal of the hydrallazine and we feel convinced that the patient's illness was due to hydrallazine.

Despite serious toxic effects in 7–9% of patients treated with hydrallazine American workers with wide experience of it (Schroeder and Morrow 1953, Dustan et al. 1954, Perry and Schroeder 1954) regard it as a valuable therapeutic agent for which no adequate substitute is available, and are of the opinion that its use must constitute a calculated risk, which is justifiable in severe and malignant hypertension. We feel that the hazards involved may not be sufficiently well known in this country.

Summary

A case of acute pyrexial illness and pancytopenia occurring during hydrallazine therapy for hypertension is reported.

Our thanks are due to Dr. D. K. Adams and Dr. C. D. Anderson for their interest in this case.

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AN UNUSUAL CASE OF TUBEROUS SCLEROSIS

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THOUGH the term tuberous sclerosis refers really to changes in the brain it has come to signify, in its classical form, a familial disease of children with mental deficiency, epilepsy, and adenoma sebaceum of the face as its most common manifestations (Oswald 1952). This syndrome is also called Bourneville's disease, Pringle's disease, and epiloia (a term coined by Sherlock in 1911 but now in disuse).

The case described below is reported because of the very late occurrence of epilepsy, the minimal mental deficiency, and the survival into the sixth decade.

Case-report

An engineer, aged 51, was admitted to hospital on June 18, 1956, with active pulmonary tuberculosis.

On admission he had adenoma sebaceum (fig. 1) and multiple subungual fibromata in hands and feet (fig. 2), and multiple skin tags and a few villous papillomata elsewhere. Treatment with streptomycin, *p*-aminosalicylic acid, and isoniazid in the usual daily dosage was begun.

Convulsion.—Suddenly on July 24, 1956, for the first time in his life he had an epileptiform convulsion without an aura. Facial twitching was rapidly followed by generalised tonic spasm, cyanosis, stertorous breathing, coma, and incontinence of urine. No cardiovascular abnormalities or localising neurological signs were elicited, but both plantar responses were extensor. In about ten minutes he regained consciousness but remained confused for another twenty minutes; his plantar reflexes were now flexor.

Family History.—Further inquiry revealed that his younger son, aged 23, had adenoma sebaceum, and recurrent attacks of epilepsy and was mentally defective. The family history was otherwise irrelevant.

Investigations.—The erythrocyte-sedimentation rate was 47 mm. in the first hour (Westergren). Hæmoglobin 90% (13·3 g. per 100 ml.). White cells 10,100 per c.mm. (differential count normal). Wassermann reaction and Kahn test negative. Sputum contained acid-fast bacilli in smear and on culture. Radiography of the skull showed scattered calcification in the pineal body, the choroid plexus, and the pituitary fossa; areas of erosion in the inner table of the vault; and a few discrete "punched-out" areas. The whole picture was consistent with the diagnosis of tuberous sclerosis. Radiographs of the hands and long bones were normal. Plain radiographs and tomograph of the chest showed extensive pulmonary tuberculosis (no honeycomb appearance). Excretion urography showed no evidence of renal tumour. Retinoscopy showed, in the left eye, a glistening white nodular mass slightly bigger than the disc and projecting on the nerve-ending, suggesting either tuberous sclerosis or a gigantic collection of colloid degeneration. The psychiatrist's opinion was that the patient's intelligence was slightly subnormal but did not amount to mental deficiency. Electro-encephalography showed mild non-specific abnormal theta activity with no definite evidence of epilepsy or of any local cortical lesion. Electrocardiography and laryngoscopy gave normal results.

Fig. 1—Adenoma sebaceum.

Discussion

Tuberous sclerosis is a rare congenital disorder of both ectoderm and mesodermal elements. The incidence has been estimated at about 1 in 300,000 in London (Dawson 1954), divided probably equally between the milder and incomplete forms (*formes frustes*) and the classical forms. Half of the patients have a familial incidence, and many such families have been described (Dickerson 1951,

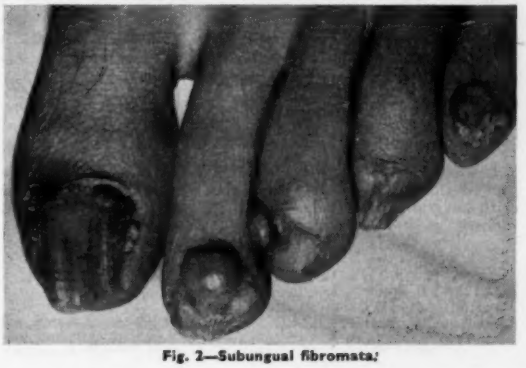

Fig. 2—Subungual fibromata.

Dawson 1954, Jordan 1956). The pattern of inheritance is probably through a dominant gene (Penrose 1938).

Medical consultation is sought by parents because of repeated seizures, mental retardation, or (rarely) adenoma sebaceum. Patients with the classical triad rarely survive beyond the age of 20. Nevertheless some patients reach the third and fourth decades (Brain 1951). The prognosis is better in *formes frustes*, especially when adenoma sebaceum alone is present (Wilson 1954). Stewart (1935) recorded the sudden death of an apparently normal young woman who did not even display adenoma sebaceum, but necropsy disclosed characteristic cerebral changes. Warrack (1950) described a case in a young man of normal intelligence who had fits just before his death. Conversely and exceptionally, patients in whom the fits have come on early have lived to the age of 47 and 75 (Lind and Nieuwenhûyse cited by Wilson 1954).

The present case was a *forme fruste* until the epileptiform convulsion, coupled with slight but definite mental deficiency, clearly pointed to tuberous sclerosis. The age of onset of fits merits further consideration. It is generally agreed that the earlier the onset of fits the graver is the prognosis. It may be significant that, in the two cases published by Stewart (1935) and Warrack (1950), the late onset of fits was followed rapidly by death. The unique feature of the present case is the appearance of the first and only fit at the age of 51. The patient has since remained well. The cause of such a late fit is obscure. One interesting suggestion is the possibility of malignant change in the sclerotic glial tissues (Globus et al. 1932), of which there appears to have been no recorded instance; nor is there any evidence of it in the present case.

Adenoma sebaceum is usually symptomless; it may appear early or during adolescence. Subungual fibromata, usually multiple, emerge from the margin of the nail-bed to lie on the nail (fig. 2). The nail-plates show vertical ridges and dystrophy (Sequeira et al. 1947). In addition to hæmangiomatous plaques, warty growths or fibrous nodules may be found and verified by biopsy.

Radiography of the skull usually shows scattered areas of calcification and sclerotic plaques. Erosion of the vault and a cystic punched-out appearance in the spongiosa are uncommon (Pancoast et al. 1942) but were seen in the present case. Radiography of the hands and the long bones may show cystic spaces. Plain radiography and tomography of the chest will detect any cystic change in the lungs. Kidney tumours may be detected by excretion urography. Retinoscopy may disclose phakomas (small lentil-shaped tumours), and laryngoscopy may reveal a laryngeal tumour. Electrocardiography rarely shows heart-block. Electro-encephalography is of no particular value in diagnosing cerebral tuberous sclerosis (Dawson 1954).

Summary

A man, aged 51, who had tuberous sclerosis presented with the syndrome of very late epilepsy, minimal mental deficiency, and survival into the sixth decade, in addition to retinal changes, subungual fibromata, dystrophy of the nails, and supporting radiological appearances of his skull.

The fact that he also had pulmonary tuberculosis is regarded as fortuitous.

I wish to thank Dr. Vernon Davies for permission to publish; Dr. R. J. Calvert and Dr. R. S. Francis for helpful criticism; and Dr. J. E. Glancy for his electrocardiographic report.

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PARALYTIC ILEUS COMPLICATING MESENCEPHALITIS

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THE association of true gastric and intestinal atony with a lesion in the brain-stem appears to be either excessively rare or seldom reported. We report a case in which bilateral involvement of the vagal nuclei resulting from mesencephalitis was accompanied by paralytic ileus and the distribution of the causal viral lesion was unusual.

Case-report

A male diabetic, aged 49, was admitted to hospital on Feb. 6, 1955, with severe vomiting. His occupation as secretary to the Master Butchers Association entailed frequent visits to the local abattoir. His diabetes, which was of some years' standing, had been well controlled, and he had led an energetic life. His illness began on Jan. 24, 1955, with pyrexia, which lasted until Jan. 28. During this time he had an influenza-like illness with pyrexia, rigors, malaise, and unproductive cough without obvious physical signs in the chest. From Jan. 29 to Jan. 31 he was apyrexial and felt well apart from the cough. On Jan. 31 he had a severe paroxysm of coughing and temporary slurring of speech, which cleared up within two hours. On Feb. 1 he developed severe occipital headache with neck stiffness, felt dizzy, and began to vomit. The neck stiffness lasted three days, and the headache gradually diminished in intensity and cleared up in five days. His vomiting persisted and eventually became "coffee-grounds"; it was not accompanied by abdominal pain. Since he could not keep to a diet, and his diabetic state was becoming unstable, he was admitted to hospital on Feb. 6, 1955.

Examination

On admission he was heavily built, plethoric and drowsy, but well oriented, coöperative, and apyrexial, with pulse-rate 70 and blood-pressure 150/90 mm. Hg. He vomited frequently but had no pain. His abdomen was not distended, but the bowel sounds were faint. Examination of his central nervous system revealed unequal pupils, the right being larger than the left; slow rolling nystagmus to the right; weakness of the left external rectus, with mild diplopia on looking to the left; and slight early weakness of the left side of his face and tongue.

Investigations

The cerebrospinal fluid (C.S.F.) was under normal pressure and, apart from an increased amount of sugar (133 mg. per 100 ml.), of normal constitution. Examination of the blood showed blood-sugar levels of 176–240 mg. per 100 ml.; white cells 16,900 per c.mm. (polymorphs 68%); and blood-urea and serum-bilirubin levels normal. The Wasserman reactions of both blood and C.S.F. were negative. The vomitus reacted strongly to tests for blood. The serum-sodium level was slightly lowered to 129 m.eq. per litre, but the serum-potassium and serum-chloride levels and the CO_2-combining power of the blood were normal.

Progress

On Feb. 7 the patient continued to regurgitate brown fluid, and severe hiccup became distressing. He was treated by intermittent gastric suction, and all fluids were given intravenously. Bowel sounds were still faint and infrequent. Palatal movements became weak.

On Feb. 8–10 a sharp spiky pyrexia developed (101·4°F). Complete paralytic ileus was now evident with abdominal

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distension and no bowel sounds; hiccup was accentuated. The neurological disturbances progressed rapidly, and the patient had complete left facial palsy, complete loss of palatal movement and paralysis of both vocal cords, complete right hemianæsthesia, anæsthesia of the left side of the face, and ataxia of the left arm and leg.

On Feb. 10 the C.S.F. was normal, apart from traumatic blood and a sugar content of 142 mg. per 100 ml. (The highest blood-sugar level recorded during the pyrexial period had been 288 mg. per 100 ml.)

On Feb. 11 slight improvement was evident in that speech and palatal movement improved and the gastric aspirate became clear, but the patient now had signs of aspiration pneumonia with generalised sticky râles and consolidation at the right base. An intensive course of aureomycin was begun. Since his cough was croaking and useless, frequent pharyngeal suction was necessary to prevent accumulation of secretions.

On Feb. 13 bowel sounds had returned and the patient was passing flatus. This encouraging trend was maintained for five more days. Although the serum-potassium level fell to 3·6 m.eq. per litre on Feb. 14 it was restored to 4·8 m.eq. per litre by Feb. 19 with oral potassium-chloride supplements. The nystagamus became less and there was slightly less incoördination in the left arm. Sensibility to pain returned to the left side of the face.

On Feb. 19 hiccup began again, bowel sounds disappeared, and large amounts of dark-brown aspirate were withdrawn. His respirations became shallow and jerky, decreasing to 10 a minute, and his voice and palatal movements were once again lost. Nystagmus worsened, and he became very drowsy.

On Feb. 20 involvement of the descending root of the fifth nerve was shown by loss of sensitivity to pinprick over the left side of the face except the periphery; the sympathetic nervous system by mild Horner's syndrome on the left side; the ninth and tenth nerves by complete loss of palatal movement and by paralysis of both vocal cords; the twelfth nerve by paralysis of the left side of the tongue; and the inferior cerebellar peduncle by nystagmus. The patient tended to fall to the left side and had ataxia of the left arm and leg. His right hemianæsthesia persisted. In this episode the facial and abducens nerves did not seem to be affected.

Convalescence

After two days the patient started to recover. Within two weeks his voice had returned, palatal movements were present on the right side, and he could swallow milk foods. Bowel movements were normal. He was eventually discharged from hospital, nine weeks after admission, in good condition but with residual neurological signs which still persist after eighteen months: signs of damage to left fifth nerve; right hemianæsthesia; left cerebellar ataxia and nystagmus; and palsy of left tenth and left twelfth nerves. He can compensate for his ataxia fairly well and has returned to light duties. Swallowing presents little difficulty, but solid foods have to be well washed down with fluid. He gets vague limb pains occasionally, and there is a tendency towards a parkinsonian facies and increased muscle tone.

Significant Serological Tests

Apart from the investigations mentioned above two samples of serum sent to the Virus Reference Laboratory, Colindale, twelve and twenty-seven days after the onset of his illness both gave a positive complement-fixation test in a titre of 1 : 32 to lymphocytic choriomeningitis. The Virus Reference Laboratory reported this as being a significant figure indicating infection with the virus of lymphocytic choriomeningitis two weeks or more before the first specimen was taken. The Wasserman dye test for histoplasmosis was negative, as were the leptospiral agglutination tests.

Discussion

Whereas the innervation of the large intestine is still a matter of controversy as regards the portion supplied by the sacral autonomic nerves, it is common teaching that the motor innervation of the small intestine arises from cells in the dorsal nucleus of the vagus. Nevertheless, the standard textbooks of gastro-enterology cite no instances of intestinal atony arising from vagal section, and the experimental work of Alvarez (1950) has shown that there is very little change in bowel movement after vagotomy. On the other hand, Freis et al. (1952) noted constipation in about two-thirds of the hypertensives whom they were treating with hexamethonium compounds. In four cases a definite paralytic ileus occurred early in the course of treatment. The constipation and ileus were attributed to inhibition of the gastrointestinal tract by blockade of the parasympathetic ganglia. Lyons and Lord (1951), Thomas and Williams (1951), and Campbell and Robertson (1950) have also reported cases of spastic ileus complicating hexamethonium therapy.

Our patient developed a paralytic ileus during the course of medullary encephalitis. The illness waxed and waned, and during each exacerbation ileus appeared with other signs of bilateral vagal involvement. There was no correlation between these episodes and either his diabetes or his electrolyte balance. There was no evidence of organic obstruction, and the clinical course of the illness was completely free from abdominal colic. This, in conjunction with absence of bowel sounds, was taken to indicate intestinal atony.

The only comparable cases which we have found in the literature, so far, were published by Schaeffer and Armingeat (1937) and Krasnoff and Adelman (1948). In the former case there developed, during exacerbations of disseminated sclerosis, an intestinal stasis in which the presenting symptom was intense abdominal colic. Operation revealed a dilated descending colon with a normal small intestine, and it was believed that the condition was due to spasm of the lower part of the large bowel as a result of irritation of the vagus. In the same paper Guillaume was cited as having operated on a pseudo-intestinal obstruction of medullary origin and having found spasm where the sigmoid flexure becomes the pelvic colon; his patient had no pain. Krasnoff and Adelman described two fatal cases of spastic ileus complicating disseminated sclerosis, the principal features being abdominal pain and distension of both large and small bowels. Most of the cases of ileus complicating hexamethonium therapy could be grouped with these cases as being due rather to irritation than to paralysis. We have seen, but not yet reported, two such cases following treatment with mecamylamine hydrochloride.

In the present case the diagnosis was temporarily obscured by the normal condition of the C.S.F. The complement-fixation titres for benign lymphocytic choriomeningitis were so high, however, that we could only conclude that a recent infection by this virus had caused mesencephalitis. The patient's occupation as an abattoir worker exposed him to the risk of infection.

Summary

A case is recorded of paralytic ileus caused by a brain-stem lesion with bilateral involvement of the vagal nuclei. This presented as a painless atonic paralysis.

Few cases are recorded of ileus resulting from interference with the motor innervation of the bowel, and those which are comparable appear to have been due to irritation and associated with spasm and abdominal colic. Mesencephalitis due to the virus of lymphocytic choriomeningitis was diagnosed on strong serological evidence.

Our thanks are due to Dr. Harold Millar and Dr. Frederick Bonugli for helpful criticism and advice; Dr. C. Cotton Kennedy and his laboratory staff for most of the investigations; and the staff of the Virus Reference Laboratory, Colindale, for their help with the serological tests.

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Reviews of Books

Internal Medicine

A Physiologic and Clinical Approach to Disease. ROBERT P. MCCOMBS, M.D., F.A.C.P., professor of graduate medicine, Tufts University. Chicago: Year Book Publishers. London: Interscience Publishers. 1956. Pp. 706. 75*s*.

Professor McCombs has aimed at providing "a summary of the most important clinical facts, physiological concepts, diagnostic methods and therapeutic measures of use in the study and management of internal diseases." He has been remarkably successful. He has avoided the stilted phraseology of a synopsis and provided a well-written textbook with balanced comment on old and well-tried methods as well as the most recent introductions in medicine and therapeutics.

The size of the book has been kept within reasonable bounds by omitting subjects especially related to independent specialties (neurology, psychiatry, electrocardiography, and dermatology). Twelve chapters cover the disorders of the heart, hypertension and vascular disease, renal disease and renal failure, body-fluids and electrolytes, endocrine disorders, infectious diseases, pulmonary diseases, allergic diseases, disorders of the intestinal tract, disorders of the blood and blood-forming organs, rheumatic diseases and diseases of bone, and nutritional and metabolic disorders.

It would be hard to find a sounder or more up-to-date summary of modern medicine and therapeutics. It can be recommended to medical students and those working for higher examinations, while the practising physician will find little cause for disagreement and much to refresh his knowledge.

The Collected Papers of Paul Ehrlich

Vol. I: Histology, Biochemistry and Pathology. Compiled and edited by F. HIMMELWEIT, M.D., PH.D., F.R.C.P.E., director of the department of virus research, the Wright-Fleming Institute, St. Mary's Hospital Medical School, London. London and New York: Pergamon Press. 1956. Pp. 653. 4 vols, £28.

THESE volumes are being produced with financial assistance from the Wellcome Trust, and the first carries an introductory essay by Sir Henry Dale which gives an enthusiastic assessment of the whole field of Ehrlich's work and explains the idea of this reproduction.

A biography of Ehrlich has been written by Miss Martha Marquardt, but if future workers were to be able to appreciate Ehrlich's work and place in the history of scientific medicine it was necessary to publish as well a collection of the most important of his works. These volumes are the result, and the fourth volume will contain a complete bibliography of Ehrlich's writings.

Practically all Ehrlich's papers were written and published in German, and most of the papers in this volume are in that language. The papers include Ehrlich's inaugural dissertation to the University of Leipzig in 1879 (on contributions to the theory and practice of histological staining) and the thesis he presented in 1885 for his recognition as a university teacher (on the requirement of the organism for oxygen, an analytic study with the aid of dyes).

A book like this is of great value to those who study the history of the development of medical science, and the hitherto unpublished works are valuable because they show the way in which Ehrlich worked. The volumes, as they appear, will certainly find a place in every medical and science library worthy of the name of reference library.

Mental Health and Mental Disorder

A Sociological Approach. Chief editor: ARNOLD M. ROSE. London: Routledge & Kegan Paul. 1956. Pp. 626. 40*s*.

AN astonishing array of contributors and editors have united to produce a much-needed text on social psychiatry. Almost inevitably the result lacks balance and cohesion; but the book is a brave attempt to muster our limited knowledge in this complex field of interrelated disciplines. While some contributions are excellent, others will seem banal to the clinician; and much weight is given to the sociologist's approach to mental disorder. The book provides an excellent source of references.

Surgeons All (London: Rich & Cowan. 1956. Pp. 459. 25*s*.).—This story of surgery and surgeons through the ages was well received when it first appeared in 1939. It has now been reissued in its original form with a postscript on the developments of the past seventeen years. Clearly Dr. "Harvey Graham" himself read widely before writing this account, which may be read with profit by both doctor and layman. Dr. Graham's conspectus is sometimes amusing and sometimes macabre, always clear, and never dull.

Borderlands of the Normal and Early Pathologic in Skeletal Roentgenology (10th ed. New York and London: Grune & Stratton. 1956. Pp. 723. £7).—This work by Prof. Alban Köhler first appeared in 1910 under the title *The Borderlands of the Normal and Pathological in the Skiagram.* Friends turning to the latest edition (for which the book has been revised by Dr. E. A. Zimmer and translated by Prof. James T. Case) will find many changes. There are many more radiographs, and the closely printed text now amounts to 700 pages. The book is divided into sections on an anatomical basis, and each section ends with a comprehensive bibliography. On the whole, the quality of the radiographs is good. Line drawings have been included to aid the reader in interpretation. This edition will undoubtedly retain the esteem won by its predecessors.

Scientific and Learned Societies of Great Britain (London: Allen & Unwin. 1956. Pp. 211. 35*s*.).—The old *Yearbook of Scientific and Learned Societies* was one of the academic casualties of the war. In place of this respected annual the British Council offers what seems to be going to be a useful quinquennial substitute. This handbook is better than its title, for it lists not only the scientific and learned societies but also the organisations and institutes responsible for research, giving four pages to the Medical Research Council and its dependent units.

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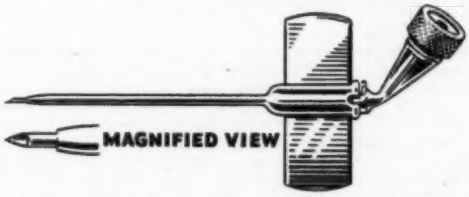

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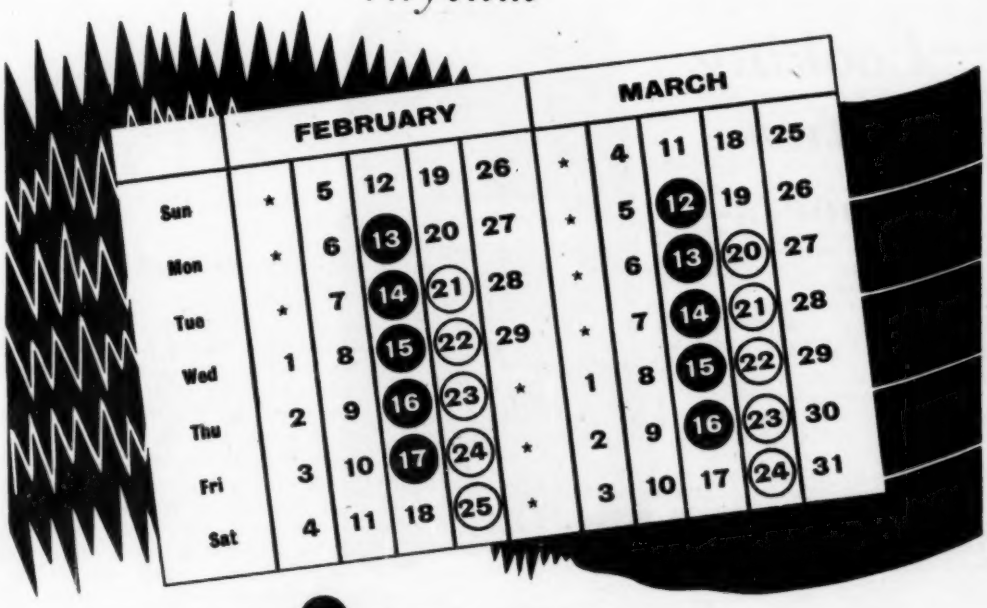

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THE LANCET
LONDON: SATURDAY, DEC. 22, 1956

Head Injuries

IN a certain hospital area serving a community of about a quarter of a million, 276 patients were admitted with head injuries in 1955—not including those in whom head injury was noted as a minor feature, nor the 6 who refused hospital treatment. If more than 1 in 1000 of the population is admitted to hospital every year because of head injury, the burden on the National Health Service must be heavy, and there are indications that it will grow heavier still. Regional head-injury centres are now established at many points in the country; and of the patients admitted last year to hospitals in the area we have in mind, 7 were transferred to the regional centre (1 with a compound fracture and 6 with intracranial hæmorrhage) and another was sent direct to the centre without preliminary admission. Of the patients retained at their local hospitals, 8 died within a short time, 76 required long treatment but not transfer, and 203 went home after a few days, apparently none the worse. Of these 1 was readmitted six weeks later with an extradural hæmatoma which needed operation. It seems, therefore, that about 7 patients out of 10 required no special treatment, and we know now that most of them would probably have recovered just as well at home. Finally, in the same area, 1118 scalp wounds and 1319 "bruises and scrapes" were treated and sent home. So far as is known, these were all without after-effects.

The principle applied in dealing with head injuries is to admit to hospital every one which might become a surgical emergency, so that those that do can be promptly diagnosed and, if necessary, transferred. In the present state of our knowledge, selection must be wide: very many patients must be detained and many transferred, so that the few to be saved by specialised surgery may be brought to it in time. The casualty department usually admits anyone with a history of unconsciousness, however transient, anyone with increasing headache, and anyone with physical signs—especially pupil changes—indicative of brain damage. Yet recently, in the same area, a patient who rapidly died from extradural hæmorrhage had not been unconscious at the time of the injury, and had had no physical signs when examined in the casualty department.

Though selection has to be wide, there must be a limit. If every patient with a head injury (which, literally interpreted, includes everyone with a scalp wound), or even everyone knocked unconscious, were transferred straightway to a head-injury centre, the unit's resources would be taxed to collapsing-point in a week. If everyone with a scalp wound were given a complete examination of the central nervous system, and of other systems for signs of associated injuries, the work of casualty departments would become impossible. Most of the patients would object to the inconvenience, embarrassment, and waste of time—and even then some serious intracranial injuries would pass undetected. No system of selection, however carefully applied, can be perfect. Events described at two recent inquests illustrate these difficulties.

A child was brought to a casualty department with an injury to the scalp which had not caused any loss of consciousness. The scalp wound was sutured and dressed, and an X-ray examination of the skull was made. The child was sent home with instructions that her family doctor was to be called if there was any further trouble. During the night her doctor was called, and she was sent to a neurosurgical centre where she subsequently died from extradural hæmorrhage. At the inquest the father said that he had been told at the neurosurgical centre that "if they had seen the case earlier they might have been able to do something." The coroner considered that the treatment at the peripheral hospital had been perfectly satisfactory.[1]

A man walked into a casualty department after an injury. The casualty officer diagnosed two black eyes and a broken nose, and arranged for him to return in ten days for an appointment with the E.N.T. surgeon to straighten his nose. Three days later the patient was admitted to the hospital. An X-ray film failed to show any fracture, but signs of an intracranial lesion had appeared. He was transferred to a neurosurgical centre, where he died soon afterwards. The cause of death was a fracture of the base of the skull, meningitis, and a ruptured œsophagus. At the inquest (which we referred to earlier[2]), the casualty officer admitted that he must have made a mistake when he first saw the patient. He declined to say whether he thought the man's life might have been saved had the fractured skull been diagnosed sooner.

When they read that the casualty officer confessed to a mistake, many doctors of greater experience must have felt that they would have made the same mistake in similar circumstances. Moreover, it was perfectly reasonable for a child with a scalp wound and no history of unconsciousness to be sent home after treatment, and this is done safely thousands of times every year. We do not know who first suggested that the prospects might have been better if these patients had been transferred earlier to the neurosurgical centre. From the reports we have seen, however, it seems very improbable that anyone could have detected indications for immediate transfer at the first examination. It may be true to say that, in a particular case, delay in transfer has reduced the chances of survival; but relatives are apt to read into such remarks an indictment of the preliminary handling, and to accept them as authoritative when made by one who has, in fact, little authority to make them. True or not, they are better left unsaid.

A further point of importance is brought out by the second case. Ruptured œsophagus is a rare but potentially disastrous complication of head injury. Only about 12 cases have been recorded in the past

1. *Northern Echo*, Oct. 5, 1956.
2. See *Lancet*, Sept. 8, 1956, p. 521.

few years.[3–5] WYATT and KHOO [3] described 4 cases of ruptured œsophagus in 210 necropsies on patients with intracranial lesions: 2 of these were due to head injury. FRENCH et al.[4] recorded 3 cases, 1 of which was due to injury; and MACIVER et al.[5] gave a detailed account of 9 cases among 452 deaths from head injury, and of 10 others due to tumours or vascular lesions. All were discovered at post-mortem examinations, and many of them were unsuspected before death. How many of these patients could have been saved if the ruptured œsophagus had been detected earlier it is impossible to say; but certainly the condition is seldom referred to in teaching and many doctors may qualify without being aware of it as a complication of head injury.

Paget's Disease

MORE and more thought and research is being devoted to the chronic ailments of later life, and few of these have a better claim to a new experimental and clinical approach than Paget's disease of bone. As COLLINS has lately illustrated,[6] the condition is far from being the "rare disease of bone" which PAGET described over seventy years ago.[7] Though the diagnosis often rests on radiological and post-mortem findings rather than on the clinical picture, this subclinical form is of more than academic interest. The importance of age, race, sex, heredity, social class, occupation, climate, diet, and associated diseases can be assessed only by studying large numbers of cases—those with no symptoms could be included. Man alone can be studied, for (apart from rabbits, in which a "condition resembling Paget's disease" has been observed,[8] and possibly monkeys) other species are immune. COLLINS emphatically supports ALBRIGHT and REIFENSTEIN's contention [9] that Paget's disease is a focal and not a generalised disease of bone. He estimates that in as many as 10% of cases a single bone is affected; and the fact that solitary or scattered foci often show the histological features of the late "burnt-out" phase suggests that they are self-contained lesions rather than starting-points of a spreading disorder. It must be admitted, on the other hand, that many authors, including PAGET himself, have described patients in whom the entire skeleton gradually became involved; and it is hard to refute MOORE's argument [10] that too short a period of observation, or the patients' premature death, accounts for most instances of one-bone Paget's disease. Moreover, the extraordinary rise in the serum-alkaline-phosphatase level (higher "per unit of bone disease" than in any other condition [9]) is easier to reconcile with a general metabolic disturbance than with a local disorder of bone. The surprisingly normal calcium and phosphorus levels lend indirect support to BOURNE's belief [11] that this enzyme is concerned not with the precipitation of bone salts, as embodied in the classical theory of bone formation, but with the production of the organic matrix; and they also remind us that too much attention should not be paid to radiological abnormalities, which reflect changes in mineral content far more than the state of the soft tissue.

The nature of Paget's disease is likely to remain in doubt until more is known about the pathogenesis of the individual lesions. Their patchy distribution is in sharp contrast to the bone dystrophy of hyperparathyroidism and is indeed often regarded as prima-facie evidence against an endocrine mechanism. Adrenal corticoids and parathyroid exact were said to relieve symptoms in Paget's disease,[12] but this has not been confirmed. Neither has the inflammatory hypothesis of PAGET [7] or KNAGGS's idea [13] of toxic absorption stood the test of time; and the occasional development of sarcoma hardly justifies the conclusion that Paget's disease has a neoplastic origin. Further, JAFFE's view [14] that the disease results from a breakdown of the normal mechanism of creeping replacement of bone may be correct, but it does not illuminate the underlying cause; and evaluation of the interesting parts played by disturbances of magnesium and citrate metabolism [15–17] must await further study. On the other hand, much attention has lately been given to the entirely different idea of a primary vascular abnormality. There is a tremendous increase in blood-flow to "Paget" bone [18–20] and when the disease is widespread this may impose a severe strain on the heart, and can even precipitate a high-output type of heart-failure. [21 22] The question, however, remains, whether it is Paget's disease which causes the increased blood-flow or the disturbed circulation which causes the bone changes. BRAILSFORD [23] believed that the bony lesions may well be secondary to some vascular malformation in the bones, perhaps multiple arteriovenous shunts; and MOORE [10] put forward convincing arguments in favour of a "sporadic failure of the autonomic nervous system" to account both for the increased blood-flow and, indirectly, for the haphazard way in which new bone is laid down in response to excessive resorption. This hypothesis, as MOORE himself admits, is weakened by the absence of hyperæmic changes in the surrounding soft tissues; but it is certainly remarkable that no other abnormality of the skeleton—trauma, hyperparathyroidism, metastatic carcinoma—affects the local circulation as Paget's disease does. DUTHIE and MERCER [24] impressively demonstrated these vascular changes by means of radioactive phosphorus (P^{32}). Their patient required spinal fusion, because the diseased vertebræ were encroaching on the lumbar nerve-roots, and four months later the operation site had to be explored again. 200 microcuries of P^{32} were injected intra-

3. Wyatt, J. P., Khoo, P. N. *Arch. Path.* (*Lab. Med.*), 1949, **47**, 110.
4. French, J. D., Porter, R. W., von Amerongen, F. K., Raney, R. B. *Surgery*, 1952, **32**, 395.
5. MacIver, I. N., Smith, B. J., Tomlinson, B. E., Whitby, J. D. *Brit. J. Surg.* 1956, **43**, 505; see *Lancet*, July 7, 1956, p. 29.
6. Collins, D. H. *Lancet*, July 14, 1956, p. 51.
7. Paget, J. *Trans. med. chir. Soc. Lond.* 1877, **60**, 37.
8. Orr, J. W. *J. Path. Pact.* 1937, **45**, 29.
9. Albright, F., Reifenstein, E. C. jun. The Parathyroid Glands and Metabolic Bone Disease. Baltimore, 1948.
10. Moore, S. *J. Bone Jt Surg.* 1951, **33A**, 2.
11. Bourne, J. H. Biochemistry and Physiology of Bone. London, 1956.
12. Berman, L. *Endocrinology*, 1936, **20**, 226.
13. Knaggs, R. L. *Brit. J. Surg.* 1925, **13**, 206.
14. Jaffe, H. L. *Arch. Path.* 1933, **15**, 83.
15. Haury, V. G. *J. Lab. clin. Med.* 1942, **27**, 1362.
16. Lake, M. *J. Bone Jt Surg.* 1951, **33B**, 3.
17. Dixon, T. F., Perkins, H. R. *In* Biochemistry and Physiology of Bone. 1956.
18. Klippel, M., Pierre-Weil, M. *Nouv. Iconogr. Salpêt.* 1909, **22**, 1.
19. Cone, S. M. *J. Bone Jt Surg.* 1922, **4**, 751.
20. Moore, S. *Amer. J. Roentgenol.* 1923, **10**, 507.
21. Edholm, O. G., Howarth, S., McMichael, J. *Clin. Sci.* 1953, **12**, 277.
22. Howarth, S. *Ibid*, p. 271.
23. Brailsford, J. F. *Brit. J. Radiol.* 1938, **11**, 507.
24. Duthie, R. B., Mercer, W. *J. R. Coll. Surg. Edinb.* 1955, **1**, 1.

venously an hour before the second operation; and the vascularity of normal bone, Paget bone, transplanted normal and Paget bone, and a tibial cortical onlay graft were measured by radioactivity counts on "wet-ashed" and dissolved biopsy specimens[25] and by micro-autoradiography of undecalcified sections.[25] The results, though they do not give detailed information about the circulation through the diseased area, amply confirm that there is more blood in Paget bone than in normal bone, and more blood in transplanted Paget bone than in poorly vascularised cortical grafts.

It is to be hoped that such new methods of investigation will bear therapeutic fruit, for in an important minority the disease is still responsible for much suffering. Unlike the vigorous young athlete, the elderly patient with the grotesque skull, bent back, pot-belly, and Chaplinesque gait will often bear his pain without complaint; but his misery will show itself in grumbling, peevishness, and other "unsocial" habits which make life a trial to those about him—and therefore to himself. It is true that the pain of Paget's disease is seldom severe, but it is completely intractable and as demoralising as unrelieved "mild" toothache. Similarly, though most of the common "rotten-wood" fractures show a surprising tendency to unite, some carry the seed of dangerous complications. LAKE[16] has shown that though callus formation is rapid and abundant in the vascular phase of the disease, in the sclerotic phase union is slow and often fibrous. Long immobilisation may lead to osteoporosis, metastatic calcification, renal failure, and "chemical death"[9]; and when the surgeon, haunted by this spectre, resorts to internal fixation, the vascular marrow makes the operation a chastening experience for him and a dangerous one for his patient. Fractures are too often "recognised, taken for granted and forgotten,"[27] though occasionally they are but the presenting feature of sarcomatous degeneration; or a tumour may develop at the site of apparent union. (The sarcomas of Paget's disease, as we lately remarked,[28] are by no means always of the osteogenic or even the spindle-cell type—another reminder that this may not be a disease of bone alone—but they are almost invariably far advanced and very malignant.) Apart from pain, fractures, and malignant change in the skeleton itself, every organ of the body may be affected. A slight thickening of the margins of the foramina of the skull and spinal column may lead to blindness, deafness, other cranial-nerve palsies, nasal obstruction, sinus infection, severe neuralgias, or paraplegia; encroachment of bone on the pituitary stalk may result in diabetes insipidus; deformity and immobility of the thorax predisposes to respiratory infections; and bowing of the long bones carries the additional penalty of arthritis in the neighbouring joints. Among the less commonly recognised complications, mental symptoms are far from rare; and they are not always due to associated cerebral arteriosclerosis[29 30] or "just old age."

25. Leblond, C. P., Wilkinson, G. W., Belanger, L. F., Robichon, J. *Amer. J. Anat.* 1950, **86**, 289.
26. Duthie, R. B. *J. Path. Bact.* 1954, **68**, 296.
27. Ghormley, R. K., Sutherland, C. E., Pollock, J. A. *J. Amer. med. Ass.* 1937, **109**, 211.
28. See *Lancet*, Sept. 8, 1956, p. 499.
29. Clegg, J. L. *Lancet*, 1937, ii, 128.
30. Goldenberg, R. T. *J. Bone Jt Surg.* 1951, **33A**, 4.

WYLLIE[31] demonstrated that, in the advanced stages of the disease, the anteroposterior diameter of the skull is increased but the depth of the cranial cavity is diminished; and, in GRÜNTHAL's patient[32] the cerebellum was actually compressed and the Purkinje cells partly disappeared.

More recently, Paget's disease of the jaws (another type seldom diagnosed hitherto) has been investigated by COOKE[33]; and the fact that he has been able to observe 15 cases suggests that many may have been missed in the past. (PAGET's memorable patient was in the Yeomanry Corps, and nearly every year he needed a larger hat and helmet. Perhaps in this age of soft berets for soldiers, the need for repeated easing and refitting of dental prostheses will become heir to this classical mode of presentation.) In the jaws the condition may be closely allied or identical with leontiasis ossea and cherubism, as DAVIS believes on histological grounds,[34] or a distinct entity, as COOKE concludes from his clinical and radiological inquiries; whichever it may be, the need to recognise the disease before embarking on dental treatment is obvious. For a patient with Paget's disease of the jaw, dentures not only must be particularly well designed but may also have to be regularly refitted to avoid pressure necrosis of the gingivæ and bone, and even the formation of an antral fistula; and if the thickened alveolar ridges must be reduced to make the prosthesis fit, care must be taken that no dense superficial sclerotic nodules are left behind. Inflammatory episodes in the teeth and gums may lead to intractable and painful chronic osteomyelitis; and if a heavily cementosed tooth has to be extracted the surgeon must be on guard against profuse hæmorrhage from the vascular bone or a troublesome dry socket. Unfortunately, the best attention can do little for the constant boring pain, which may be severe enough to require alcohol injection of the trigeminal ganglion; nor can the progress of the disease be arrested. 3 of COOKE's patients became deaf; most of them had gross deformity of the face (the prominence of one or both cheek-bones gave their faces a flat, broad, coarse, and rather similar appearance); and in 1 sarcoma of the maxilla supervened. With the wider recognition of these aspects, Paget's disease is becoming more and more a mirror reflecting all the common infirmities of old age.

How Many Iatrics?

THE subject of medicine is so large a cake that it has to be cut somehow, but too much cutting will make it disintegrate into crumbs. Already there are at the very least five ways of doing it: according to the treatment they give, we designate surgeons, physicians, homœopathists, and psycho-analysts; dividing them anatomically, we can separate chest physicians, cardiologists, neurologists, and others; by the diseases they study, we recognise specialists in tuberculosis, fevers, industrial diseases, venereal diseases, and so on; from the investigations they pursue, we can identify, for example, histologists, radiologists, electro-encephalographists, and even semino-

31. Wyllie, W. G. *Brain*, 1923, **46**, 336.
32. Grünthal, E. *Z. ges. Neurol. Psychiat.* 1931, **136**, 656.
33. Cooke, B. E. D. *Ann. R. Coll. Surg. Engl.* 1956, **19**, 2.
34. Davis, E. D. D. *Brit. J. Surg.* 1956, **44**, 184.

logists; and lastly we can divide them according to the age of their patients. Pædiatricians have not long achieved the dignity of their title (we seem to have first used the term "pædiatric physician" in these columns in 1894 [1] when speaking of Prof. JOHANN BOKAI, of Budapest); geriatricians laid their claim to the elderly only a quarter of a century ago; and it is just over two years since Sir HENEAGE OGILVIE [2] produced ephebiatrics. In a letter in this issue Dr. VAKIL pictures yet another age specialty and introduces the "mesiatrician," who is to concern himself with diseases of the middle-aged.

Logical though it may be, Dr. VAKIL's proposal will be stoutly resisted. Not long ago CRIGHTON BRAMWELL,[3] in welcoming the signs that some of the barriers between medicine and surgery are being broken down, added that if they are replaced by new ones we may be worse off than before. Also we must recognise that many diseases refuse to be confined to particular age-groups. Common afflictions such as boils assail mankind from the cradle to the grave, and others switch their target from one age to another—as witness poliomyelitis, which was formerly a disease of children but has now extended its attack to youth and middle age. Moreover, if partitioning by age were encouraged there would be hardly any limit to the number of specialties that might arise; for no doubt every decade has a preponderance of individual diseases, and the seven ages of man could be served by seven different kinds of specialist—the transfer from one specialty to another being supervised by a series of appropriately designated intermediatricians.

On the other hand, if division by age is not permitted at all, we shall have to refuse the claim of pædiatrics and geriatrics to recognition as separate specialties. Where is the reasonable limit to be drawn? Children may be sufficiently distinct in their illnesses and their behaviour to need a specialty of their own, particularly since their different habits as regards sleep, play, food, and noise make it convenient to separate them from their elders; but, in principle at least, there is far less justification for putting old people in special wards and providing them with special geriatricians to care for them. Though the urgent need to raise standards in the medical care of the elderly makes it useful, at present, to appoint doctors to concentrate entirely on such work, we should look forward to a time when they will require no title other than that of physician. Indeed most general physicians find that they manage quite happily with a mixture of all ages in their wards; and many of them would say that specialisation by age has already been allowed to go too far. Is there in fact any necessity for more divisions than are made for public transport or for admission to the cinema—namely, adults and children? Though we recognise that Dr. VAKIL is right in asking for more attention to health and disease in middle life, we should be sorry to see such work narrowed by the creation of a specialty.

1. *Lancet*, 1894, ii, 1065.
2. *Ibid* 1954, ii, 395.
3. Bramwell, C. *Ibid*, Oct. 20, 1956, p. 793.

Annotations

RADIOGRAPHERS WANTED

WHETHER it is the love or the lack of money that is the more deplorable must remain a dispute between St. Paul and more modern philosophers; but the lack of it seems to be the root of at least one evil in this country today—the shortage of radiographers. The whole country is affected, and even teaching hospitals have felt the pinch; but mass-radiography units and chest clinics are suffering most. Sometimes, when a senior or even a superintendent radiographer leaves a job or retires, there are no applicants for the vacant post. Some mass-radiography units have never had their full establishment since they were founded; others have no full-time staff, or rely on trained but unqualified radiographers. To aggravate matters, darkroom technicians are also scarce. Moreover, the position is likely to get worse because the number in training is falling. In 1949 there were 1994 full-time radiographers in the National Health Service and 880 students. By 1955, when the amount of work in the diagnostic departments had doubled, there were 3077 full-time radiographers, but only 684 students (these figures include those in diagnostic and therapeutic work).

In trying to decide what is a fair income for a particular job, the demand for special services, the compensation for dangerous or unpleasant work, the expense and length of the necessary training, the responsibility, the hours of work, and the rewards for long service and experience must all be considered. Perhaps the most helpful simple approach is to compare a particular salary with what people of comparable qualifications are earning elsewhere. By this criterion it seems that radiographers in the N.H.S. are hard done by, because industry usually offers better pay and conditions. And others in the service must also find the prospects relatively poor: the top figure for a superintendent radiographer of a normal-size department is now £750 (under new scales announced last month), for a head occupational therapist or superintendent physiotherapist it is £769, and for a chief laboratory technician it is £1025. It should be remembered that (unless she can get a grant from an educational authority) the radiographer or the physiotherapist must pay for her course of training. The salaries of junior radiographers do not compare well with those of clerical staff in the N.H.S.; and the driver of a mobile M.M.R. unit may earn more each week than the radiographer. Furthermore, radiographers cannot add to their income by overtime pay, except for small sums in respect of stand-by duties and emergency calls; for their hours of work are limited by the recommendations of the British X-ray and Radium Protection Committee. The new starting salary for the newly qualified (£420 per annum) is quite good for a girl of 20; but after five years in the basic grade a married man may still be earning only £485 p.a. Many of the girls soon leave radiography when they get married; and many of the men go abroad or into industry when they find how poor are the prospects even of promotion to senior or superintendent posts, which themselves are not well paid.

Doubtless there are other reasons for the shortage of applicants for training. Parents may be fearful that radiography is not a safe occupation, though the risks under modern standards of protection are negligible. Students of radiography are not allowed to begin their training until they are 18, and that means those leaving school after taking their general certificate at 16 seldom consider radiography as a career. There is thus much to be said for lowering the minimum age.

An increase in the number of senior or superintendent posts would be an inducement to radiographers to stay in the service: but the shortage will certainly continue until their salaries are brought into line with those of others doing comparable work outside the service. And

the same could be said for other branches of the N.H.S. which are finding it hard to keep up standards as their best men and women leave because they can do better elsewhere. As Mr. Baxter says in his letter on p. 1308, the increases lately announced will do little to put things right.

ARTIFICIAL KIDNEYS

EARLIER this year [1] we reviewed recent developments in the use of the artificial kidney for the treatment of acute renal failure. Though standard conservative methods [2 3] are adequate in most cases, dialysis is necessary in the treatment of hyperkalæmia uncontrolled by ion-exchange resins,[4] severe acidosis due to phosphate and sulphate retention, and uræmic stupor and muscular irritability. We raised the question whether conservative management had not been carried too far in this country, and we suggested that one or two groups might devote themselves to further study of the artificial kidney. An instrument of the Kolff [5] type, with improvements introduced by Merrill [6] and Hamburger and Richet,[7] is now in use at Hammersmith Hospital, London, and other centres are becoming interested in this important and now well-established method.

In this issue Dr. Anthonisen and his colleagues describe their experience of the Skeggs-Leonards [8] type of artificial kidney. They treated 35 patients with acute renal failure and 11 recovered. All the patients were severely ill and would probably have died without hæmodialysis. Anthonisen and his co-workers hold that dialysis should be carried out before there are clinical signs and symptoms of uræmia, when the blood-urea level is still below 400 mg. per 100 ml. Not everyone would agree with this view and no final decision is possible without a planned clinical trial. There is no doubt, however, that dialysis may be life-saving when conservative measures have clearly failed.

Kolff and his colleagues [9 10] have described further simplifications of their method. An ingenious disposable coil kidney has been devised and will shortly be mass-produced at moderate cost. The instrument consists of a spiral of cellulose tubing mounted in a cylindrical metal container measuring about 20 cm. in length and diameter. The cellulose spiral is 10 metres long, and has a dialysing surface area of 18,000 sq. cm. With a rate of blood-flow of 200 ml. per min., the urea-clearance of this artificial kidney is about 140 ml. per min. This compares favourably with the performance of normal human kidneys, which require a blood-flow of about 1200 ml. per min. to maintain a urea-clearance averaging 70 ml. per min. The relatively high clearance of the artificial kidney explains the effectiveness of dialysis methods in treatment of salicylate [11] and bromide [12] poisoning and some types of barbiturate intoxication.[13] 8 patients have now been successfully treated by the disposable artificial kidney [10] with results comparable to those obtained by the more expensive and larger types previously available. The only complication was a temporary rise of blood-pressure, which is often seen during dialysis with other types of artificial kidney. Kolff and his colleagues admit that this ingenious new instrument does not make the method suitable for general use in all hospitals. In addition to the disposable unit, a large thermostatically heated tank of 100 litres capacity and two pumps to propel the blood and rinsing fluid are needed as permanent equipment.

As Merrill [14] remarks, the efficient operation of an artificial kidney requires a nucleus of trained personnel who are familiar both with the mechanics of dialysis and the pathophysiology of body-fluids and electrolytes; and to maintain efficiency it is important that they should have regular opportunities to use the instrument.

DEXTRAN AND WOUND INFECTIONS

THE plasma substitute, dextran, a polysaccharide produced by cultures of *Leuconostoc mesenteroides*, has been found experimentally to increase the inflammatory response to staphylococci and to augment the virulence of *Salmonella typhi*.[15] This effect on infections is apparently confined to untreated dextrans of high molecular weight. When the polysaccharide is subjected to hydrolysis and the molecular weight is reduced from over 1 million to 100,000 or less, the dextran does not affect intradermal lesions produced by staphylococci or other organisms.[16] Commercial preparations of dextran for clinical use from both British and American sources are partially hydrolysed and have molecular weights of less than 1 million. They should not therefore influence wound infections in patients to whom they are given.

MEDICAL REFUGEES

THE Hungarian refugees now in this country include a score of doctors, some with their wives and children. In response to an appeal made through our columns a fortnight ago, a number of readers have offered hospitality for the necessary minimum of a month, which should enable some of them to leave the transit camps where they are now housed. Further offers (which may be sent to this office) would be welcome; for the organisation improvised to look after the refugees has not so far been able to cope with much more than physical needs, and for many of the occupants the conditions in such a camp are distressing. People thus uprooted and bewildered need individual encouragement and help in adjustment to new surroundings—and particularly to a new language. For those doctors who intend to remain in this country some special arrangements will have to be made; and it might, we think, be very helpful if in the first place a few hospitals would make room for them on the resident staff as supernumeraries. In this capacity they could perhaps be maintained by the British Council for Aid to Refugees for a few months until they knew enough English, and had learnt enough about our methods to be given a hospital appointment. For such appointment, which would further their acclimatisation to British medicine, they would have to be provisionally registered by the General Medical Council.

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Points of View

THE SCIENTIST AS CITIZEN *

DOUGLAS MCCLEAN
M.B. Lond.

"Men of science have sometimes claimed that when they have made a discovery they have no more responsibility for its use than any other citizens; but in actual fact this is not the case. For they have an influence over contemporary thought and action which is possessed by no other class of men. They are listened to by those who pay little heed to the ecclesiastic, the philosopher or the poet. Often their casual opinions, even on subjects outside their special field, are given reverent attention. They cannot therefore say of any of their discoveries: 'Take them, and use them as you think fit; this is not our responsibility.' They must educate their fellow-countrymen to use rightly the inventions they have given them, and must make plain the terrifying results which may follow their wrong use."—The late Archbishop GARBETT.

THERE are at least two schools of thought as to the part that scientists should play in the community. At one extreme we have what may be termed the "ivory tower" school; they believe that, like the cobbler, the scientist should stick to his last; he should avoid the disputes of the market-place and the popular press; professionally, he should only speak when spoken to and only give his advice when it is asked for by administrators, business men, and other men of action like that. Only so, they say, will the scientist retain his integrity and the respect of the community. He will certainly avoid the odium of actually dropping the first hydrogen bomb in anger. It is true, I think, that the extreme ivory tower doctrine is now somewhat out of fashion. The conception, however, clings on in the atmosphere like the smell of stale cigar smoke amongst the curtains—curtains which should have been rudely shaken during the past twenty years. It seems that even iron and bamboo curtains too can retain a surprising amount of very stale smoke.

At the other extreme we have those enthusiastic citizens, scientific and para-scientific, who believe that scientists should plunge into every foray and that just because they are scientists their opinion on any political question must be a useful and informed one. Their façade of scientific detachment is often not very impressive. One often detects an element of almost religious devotion to some social creed.

As a confirmed fence-sitter I find myself between these two fields of thought. It is part of my thesis that in these days we have not only a right but a duty to take an active part in forming public opinion and shaping legislation when the social issues involve scientific knowledge and its application. And how often is scientific knowledge not germane to the political issue? Whether it is in the field of chemistry and physics, engineering, economics, psychology, human or animal hygiene, objective assessment of evidence might with advantage replace much of the emotional basis of legislation today.

Scientist and Politician

The startling expansion of scientific discipline during the past fifty years, coupled with the activities of the popular press, radio, and television, has pitchforked the scientist willy-nilly into the position of priest of sorts in the public mind. If we shelter behind the mystique of white gown, test-tube, calculating-machine, and the rest it will be as unhealthy for us as it is for the public. For centuries now it has been taken for granted that priests and lawyers should be represented ex officio in the Houses of Parliament. Would anybody here maintain that they play a more important part in the organisation of society today than scientists? But where and through whose mouth does Science speak in Parliament? A few distinguished retired scientific men may enter the House of Lords; the chance of a scientist gaining admission to the Commons on a relatively independent basis has been destroyed by the removal of the university franchise. Scientific knowledge can only gain admittance timidly at second-hand through the advice tendered to a Minister by some civil servant—this at a time when scientific knowledge has more influence on our daily life in peace and our fate in war than ever before.

I would hate to advocate anything likely to lead to a technocracy, and I am acutely aware of the need for a balance of disciplines in government. I hope that I should be amongst the last to belittle the great contribution still to be made by the arts and the humanities—by the study of history and law. I am not one of those who believe that "All that we learn from history is that we learn nothing from history." I do not think, however, that I am unreasonable in suggesting that there should be some representation of informed scientific opinion in the highest councils of the State. I would suggest that a reformed non-hereditary Upper Chamber should include ex officio the generally accepted leaders of scientific thought: the presidents of the royal societies and of the royal colleges, the secretaries of the Medical Research Council and the Agricultural Research Council, the directors of some of our outstanding scientific institutions, and other suitable figures still actively engaged in the scientific field. I know that this sounds like another responsibility for those already overburdened with duties. Regular attendance in the House should not be expected; these representatives should, however, have the right to attend whenever they felt that their opinion or advice should be useful. The problem of infusing a little scientific objectivity into the Lower Chamber, I must admit, defeats me for the moment.

The recent debate in the Upper Chamber on capital punishment was a distressing example of almost entirely subjective reasoning.

Noble Lords, many of them with great forensic knowledge and most with considerable administrative experience, made speech after speech entirely compounded of appeals to horror, fear, and revenge or to pity and conceptions of the sacredness of human life. One looked in vain for the sort of factual evidence that would be likely to convince a scientist that capital punishment acted or did not act as a deterrent or that it benefited or did not benefit the community, the murderer, or the bereaved relatives. In fact these speeches revealed much of the subconscious minds of the orators but did little to illuminate the problem of dealing with crime. I may have done a slight injustice to the Lord Chief Justice: he cited the increase in crimes of violence since the abolition of corporal punishment. He omitted, however, to take into account all the possible contributory factors that would have been considered by any competent statistician. He also stated that more policemen were now taking out insurance policies, implying that this was due to their increased fear of a violent death; he did not state, however, whether they were accident policies, endowment policies, or whole-life policies. Thus we were left to wonder whether this praiseworthy increase in the providence of policemen is due to increased fear of violent death or to a realisation that their pensions are likely to be inadequate or just to improved salesmanship by the "man from the Pru."

It is always the same—whether the subject of parliamentary debate is bread or drink, circuses or sexual offences, censorship, or industrial disputes—the facts are rarely objectively presented and never dispassionately considered in a scientific spirit. The appeal is to prejudice. It must not be assumed for a moment that I think scientists are more enlightened than other men. It is obvious to all of us here that they are not. If, however, they apply the methods in which they have been trained to public affairs and if they maintain their scientific integ-

* From a presidential address to the section of comparative medicine of the Royal Society of Medicine, Oct. 17, 1956.

rity they should be able to make an invaluable contribution to political life. They should continually recall the need for objectivity and they should be able to debunk slush.

The Scientist's Rôle

We must now turn to the part which the scientist should play either as an individual or corporatively with others. Earlier, I thought it advisable to explain my use of the word "scientist." Now, perhaps, I may be expected to excuse the introduction of the word "politics" into a building such as this. In some circles it is often suggested that politics are "not quite nice." "Not politics, my dear—no, not really." I am not going to apologise. I put my trust in politics to preserve us both from authoritarianism and from shameless exploitation by the greedy and, what is more important in this context, to ensure that scientific knowledge is used disinterestedly for the benefit of the community. It is constant political vigilance that preserves a balance between the people and the State, that preserves us from bureaucracy and tyranny. The political attitude should be: "If a thing is right it should be done." The bureaucratic attitude is: "If a thing is done it is right." As somebody said: "Dictators are those who have forgotten what politics are and have failed to put their trust in them."

When I said that I put my trust in politics I did not imply that I trust politicians. They do not trust each other. But then neither do scientists—or business men—always trust each other. Democratic politics have always been inspired by a healthy scepticism about politicians. That is perhaps where the scientist may come in: I must remind you that in the long history of China it was only on those occasions when the scholars and the peasants combined that a régime which had lost their confidence was overthrown. The scholars were always mainly a conservative body, but were willing to throw their weight behind a move for change when convinced that society was ankylosed. It was such a combination that sealed the fate of the Kuo-min-Tung. Is it permissible to equate the term scientist with at least some of the body of scholars?

I do not believe that a man is a poorer scientist because he is politically active. That is entirely a matter of the width of his interests and his supply of energy. In the long run nobody gains by living in an intellectual vacuum. Moreover, we have to remember that constant political activity is necessary not only to secure the proper application of scientific knowledge, but also to secure the freedom of thought and research from interference by the ignorant, the superstitious, or the sentimental or by those with a vested interest to protect. The Research Defence Society has to be political in its activities. It is only political activity that can protect science from authoritarian states or religions. We have seen something recently in the field of genetics of the results of scientific dictation by a political party. Yesterday it was Lysenko; tomorrow are we to be told to believe that it is the storks that determine genetic characters?

In the unhappy state of the world today there is another continuing threat to scientific freedom and the exchange of information. It is summed up in the word "security." Because of the widespread paranoia induced by the clash of rival political ideologies, essential scientific information is classified as secret. Much of this information has no clear and direct relation to the prosecution of war. So pathological is the atmosphere of suspicion that the exchange of information even between sworn allies is impeded. Useful social advances in which all countries could share are frustrated or delayed. The effect on the individual worker in these classified sciences can only be pernicious and inevitably leads to a measure of loss of individual civil liberty. A youthful fit of idealism inspired, shall we say, by the Spanish Civil War can mar a scientific career twenty years later. A Communist or bourgeois aunt (as the case may be) becomes a real liability and, as for an ex-Communist wife, she is likely to be the millstone that leads to one being sunk without trace. It is only continuous political vigilance finally at parliamentary level that can preserve the existing freedom and ultimately persuade the authorities that much of security is against bogies. Sir Winston Churchill, while premier, said in the House that now that both sides knew how to make the hydrogen bomb the danger of war was much diminished. It follows that if this information had been freely exchanged earlier the danger of war would have been further reduced. It is therefore arguable that a free exchange of information would completely remove the danger of conflict. The time may come when Nunn May, Fuchs, Pontecorvo, Burgess, and my clansman are regarded as benefactors of mankind. After all, Joan of Arc's "voices" and her revolutionary conception of nationalism led her to the stake. Now she is a saint.

Professional Organisations

We must return to the political rôle of the individual scientist. What is legitimate? Where should political activity begin and end? In the first place, joining the ordinary professional bodies such as the British Medical Association and the British Veterinary Association is a political act. Nobody would deny the active part played by the B.M.A. at the time of Lloyd George's Insurance Act and still more during the setting up of the National Health Service. The B.M.A. did not confine its activities to protecting the professional and financial interests of its members; it claimed also to be acting in the wider interest of the public. Some of the professional associations, such as the Association of Scientific Workers and the Institute of Professional Civil Servants, are registered as trade unions and are affiliated to the Trade Union Congress; this immediately places them in the political field. These trade unions do not confine their activities to the protection of their members. They state quite definitely that their aims include improvement in scientific education and in the social applications of scientific knowledge. In my view it is all to the good that these organisations should take a broad view of their functions and not be confined to the financial protection of their members. For example, it was the A.Sc.W. that in 1936 took a leading part in the formation of the Parliamentary and Scientific Committee, which has done valuable work. Not only has this committee familiarised members of Parliament with scientific views on current questions; it has also produced valuable reports on scientific education and on several industrial and social problems to which scientists have contributed. It was the A.Sc.W. that was instrumental in persuading the appropriate learned societies to coöperate in producing the report on the supply of laboratory animals that led the M.R.C. to set up the Laboratory Animals Bureau.

Finally, and of more critical importance, it was the Association of Scientific Workers that took the initiative which led to the formation of the Atomic Scientists Association. The Atomic Sciences Committee of the A.Sc.W. coöpted other atomic scientists in the first instance and it was this committee that recognised that they could be more effective if their work was carried out on a completely independent basis. All the work of this association flowed from a recognition of the appalling responsibility thrust upon scientists by the development of the atomic bomb. As Oliphant said: "The bomb blew to pieces the world of disinterested science." As a result atomic scientists have probably become more convinced of the necessity of international action than any other group in the community.

Intermediate between the professional organisations and the political parties there exist many associations to promote specific political objects, and many of these

have a predominantly professional membership. Many examples come to mind: at one end of the scale we have the Research Defence Society formed to combat the attacks of anti-vivisectionist and anti-vaccinationist societies on biological science and its social applications. More political, we have organisations like those set up to counter the danger of war—the Medical Association for the Prevention of War, Science for Peace, and others. Although not affiliated to any political party, these organisations aim at influencing the public by objective statements on the effects not only of war but of preparation for war—the diversions of constructive social effort, the production of mass paranoia, the risks of exposure to radiation, and so on. They have also presented constructive alternative policies which they hope may preserve us from the fate of the Gadarene swine.

There are some associations with a closer affiliation to the political parties, such as the Socialist Medical Association and the Fellowship for Freedom in Medicine. Here we have two societies apparently directly opposed in their beliefs and aims. The S.M.A. quite definitely believes in the establishment of a State medical service and the abolition of private practice. The Fellowship for Freedom in Medicine abhors such ideas. There are some who think it deplorable that professional men should go down to the equivalent of the market-place and dispute in public. They share the—to my mind—false pride of Coriolanus. I cannot see that it is undignified to disagree, to discuss, and to dispute. It is only thus that we clarify our own ideas and educate those that listen to us. None of us expect expert witnesses in courts of law to agree, and out of their disagreements the lawyers and the juries learn much. It is by combining with other like-minded people that we learn how to set forth our ideas and how to secure administrative action. I rejoice also that in this country it is still possible for diametrically opposed views on public questions to be freely ventilated. It is a commonplace that all worth-while reforms have been initiated by determined minorities—and it is all to the good if these minorities can be guided by the head as well as by the heart.

An Example

There is one problem which is probably of paramount importance at the present time in the evolution of civilisation. This is the question of population control. On its solution largely depends the social evolution of countries like India. In such countries the success of development programmes probably depends largely upon whether the rate of increase of the national income can outstrip the increase in the population. It is a political problem, and a scientific problem—but one charged with emotion. Primitive sexual beliefs and taboos, organised religion, and political parties all play their part. Curiously enough, on this question the Catholics and the Communists find themselves in the same gallery. Here scientists have a double rôle to fulfil, one political and the other scientific. On the one hand we require dispassionate discussion of all the social factors involved, and, on the other, intensive research into the physiology of the gametes and their union to form the zygote. Prejudice has to be broken down and fundamental knowledge must be gained if satisfactory methods of birth-control are to be evolved. In view of the crucial importance of the problem, the amount of time and money devoted to research on fertilisation is laughable. Thousands of millions a year are spent developing better methods of destroying living human beings but pitifully little on controlling the pressure of population which is a most potent breeder of wars. As scientists we might press for a sense of proportion in assessing the importance of these two fields of research. The Government of this country spends about £60 million a year on atomic research, about £2½ million on medical research, and £1½ million on agricultural research. This is the reflection of a curious set of values.

Duty to Society

Finally, we must consider the political parties. All scientists are citizens, and most will be led by upbringing and temperament to adhere to one or other of the great parties of the State. Few, however, will want to take an active part in what are called "party politics." In so far as those few are able to infuse an objective attitude into the study of social problems they should help to preserve us from the decay of political life and subjection to the professional political boss. There is, however, one pitfall which it is not easy to avoid: when advancing his political beliefs the scientist should not invest them with a spurious scientific cloak. The prestige of science should not be debased in order to gain a little authority or score a debating point. There is no doubt that political research can be scientific in its method and in the conclusions drawn, but it is not always easy to separate the objective conclusions from æsthetic or humanitarian desires—or the craving for power.

I should like to say a word about the Hippocratic Oath in the contemporary world. A code of ethics should be implicit in all scientific work and particularly in medical and veterinary practice. Although it is not now usual to ask newly qualified medical men and women to subscribe to any Oath, it is expected that they will conform to the currently accepted professional code of ethics. Many attempts have been made to re-write the Hippocratic Oath in contemporary terms, the most satisfactory being the version adopted by the World Medical Association at Geneva in 1948. This is reasonably satisfactory in so far as it covers the relations between doctors and their individual patients and between medical men. This declaration also introduced one valuable new clause:

> "I will not permit considerations of religion, nationality, race, party politics or social standing to intervene between my duty and my patient."

There is, however, one surprising and disappointing omission: there is no mention of a doctor's duty to society and his duty to act corporately for the benefit of the community. There is no indication that the doctor must look beyond the individual patient and his immediate illness. As it stands the Declaration of Geneva has no relevance to the very large body of medical men who have no direct relations with individual patients. Surely the experimentalists, the statisticians, the public-health workers, and the administrators need an ethical foundation for their work and a consciousness of its social purpose just as much as the physician or surgeon? We saw something of the absence or distortion of professional ethics in Nazi Germany.

I have suggested that we should not try to avoid responsibility for the social implications of our work. If this responsibility is accepted, as it must be, we should be prepared to participate in administrative and political decisions, and inevitably we are led to coöperate with those who are trying to get scientific knowledge applied to the best advantage. We must not allow cynicism and scepticism of political activity to lead to the conclusion that radical improvement is impossible. Such a sterile attitude would render creative scientific work futile, and the only alternative to frank hedonism would be suicide. Life would indeed be "A long fool's errand to the grave." Our acceptance of responsibility would also require the State to accord proper representation to the sciences in its councils.

During the past fifty years there has been a revolutionary change in our attitude to social problems. Scientific thought and the application of scientific technique has profoundly modified our approach not only to the social activities of manufacture and trade but also to funda-

mental questions of morals and the nature of the Universe. Yet our public life is still dominated by the traditional outlook appropriate to a 19th-century fellow of All Souls—an attitude that looks backwards rather than forwards and is unaware of the opportunities waiting for those with a little courage. It is only by coöperation at an international level that scientists can help mankind to seize these opportunities for our great benefit rather than for our destruction.

Before Our Time

LAWSON TAIT AND ACUTE APPENDICITIS

JOHN A. SHEPHERD
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IN a previous paper (Shepherd 1954) I indicated that the German surgeon Mikulicz was the first to suggest that acute appendicitis might be diagnosed preoperatively, and that the correct treatment was the early removal of the appendix. It has long been accepted that Krönlein (1886) was the first to remove successfully an acutely inflamed appendix after considering this diagnosis preoperatively. Krönlein did this operation in July 1885 and acknowledges a debt to Mikulicz and to Lawson Tait as the instigators of his approach to the problem of management of acute appendicitis.

In my paper I suggested that Lawson Tait was probably the first to diagnose and remove an acutely inflamed appendix in Britain, and drew attention to his description in the *British Medical Journal* (Tait 1889) of a drainage operation for appendicitis. In this article he wrote, "I have twice in cases very similar removed the vermiform appendix . . . both my cases recovered, I am disposed to think that the risk of operation is somewhat increased by this detail." Until recently the reports of these earlier appendicectomies by Lawson Tait have eluded me. It is now clear, from an article entitled Surgical Treatment of Typhlitis in the *Birmingham Medical Review* (Tait 1890), not only that Lawson Tait was the first British surgeon to diagnose acute appendicitis and treat the condition by removal of the appendix, but also that he did the first of these operations in May, 1880—his successful operation preceding Krönlein's by five years. The second patient was operated on in 1886. It seems of interest to reprint these cases in detail.

"A.D., 17, placed under my care by Dr. King, began to have ill defined pain in the right groin in May, 1880, and felt difficulty in lifting the right leg. She got better for a time, but three months after the pain increased and a hard swelling occupied the right fossa, and for a few weeks she was compelled to keep her bed. She then got somewhat better, but became very ill again in August. The swelling had never disappeared, but in August it became very much worse; and when admitted into the hospital in September, 1880, there was a peculiar crackling to be felt by the fingers all over the swelling. The temperature was 39·2°C., and pulse about 140 on admission. The whole of the abdomen was swollen, and the child lay with her knees drawn up so that I was under the impression there was general peritonitis from rupture of the caecum or vermiform appendix. I opened the abdomen in the middle line to explore and ascertain if there was anything wrong in the peritoneum, but found there was not. I then made an incision over the caecum, and opened a large abscess extending deeply down towards the brim of the pelvis, and lying bare in the cavity was the vermiform appendix. It was black and discoloured and gangrenous. I therefore snipped it off, and inverted the stump into the cavity, stitching the inverted peritoneal surfaces together with fine silk, then fastened a drainage tube deep into the pelvis, and closed the wound. Next day her temperature was 37·2°C. and pulse 84, and she left the hospital on September 21 perfectly recovered with a wound completely healed."

"E.T., admitted to hospital on March 4, 1886, with well marked acute typhlitis. I made an incision about four inches long over the tumour, and then dissecting carefully downwards for another two inches I opened the abdomen, at the bottom of which I found the caecum and appendix laid bare. The appendix seemed to me to be the source of the trouble, it was so very much swollen, so I removed it, and tucked in the stump as in the previous case of the same kind. I stitched the inverted surfaces of the peritoneum carefully together. The patient made a very easy recovery, and went home on 5th April perfectly well, and I have seen her since. She has regained her health, and was very well the last time I saw her."

A third case recorded in this series is important, because from the management of this patient Lawson Tait seems to have revised his attitude towards the problem. This is probably the case described in the *British Medical Journal* of 1889.

"Early in August of this year I was asked by Dr. Leslie Phillips to see with him in consultation a patient of his, aged 27, who had suffered from recurrent attacks of typhlitis since last Christmas. They were of more or less severity and duration, and occurred on the following dates in this same year:—From February 1st till April 4th, from May 8th till about the 12th, July 11th till August 16th, the last attack being the most severe. In each case the characteristic egg shaped tumour was present, and increased during the acute stage of the attack and diminished during the quiescent period. When I saw him it was in its quiescent condition, but distinctly marked. I entirely agreed with Dr. Phillips' diagnosis of typhlitic suppuration, and concurred with his recommendation that it should be dealt with by operative interference.

"On August 20th the patient was put under an anaesthetic by Dr. Leslie Phillips, and assisted by Drs. Arthur Johnstone and Robert O'Callaghan, I made an incision over the caecum, about three inches long and about an inch from the anterior superior spine of the ilium, dissecting carefully down till I opened a suppurating cavity on the outside of the caecum. This I thoroughly washed out with plain water, and then, in tracing the indurated mass into its elements, I discovered the vermiform appendix swollen to about three times its normal size and very hard. Dissecting the adherent tissue from its base, I became impressed with the belief that it contained a foreign body close to the opening into the caecum. I slit open the vermiform appendix about half an inch from its free end, and gave exit to a small quantity of purulent fluid. I then passed a celluloid catheter, about No. 6 size, through the opening in the appendix as far as it would go. I found it was arrested just at the point where it seemed to me the canal was occupied by a foreign body. Gentle manipulation, with a little pressure, forced this foreign body into the caecum. I left the catheter in the canal of the appendix. During the dissection the peritoneal cavity had been opened, and the next thing was to close this by stitching the free margin of the caecum to the edge of the peritoneum at the rent. I then placed a piece of drainage tube in the deepest loculus of the abscess, and closed the wound round the drainage tube and the catheter. The catheter was removed by Dr. Phillips on the 23rd August and the drainage tube on the 26th. The wound healed rapidly, and the patient made an admirable and uninterrupted recovery.

"I have twice in cases similar removed the vermiform appendix, finding it thickened, swollen and suppurating; but, though both my cases recovered, I am disposed to think that the risk of operation is somewhat increased by this detail, and the satisfactory result in the present instance leads me to believe that it may be altogether unnecessary. Certainly I shall continue to follow the new plan of opening the appendix and draining it independently until I find some reason to revert to my former practice of removing it. I may say that the foreign body which I believed had been contained in the vermiform appendix was never found, although carefully looked for."

In his survey of the surgical treatment of typhlitis, Tait defines this condition as "inflammation in the vicinity of the caecum" and advocates that such terms as "perityphlitis" and "appendicitis" should be discarded. The latter term (he affirms) "is nothing short of a classical barbarism." Tait refers in detail to the classical descriptions of Burne (1837, 1839) who, as

I have stressed in my own survey, was the first to recognise the frequency of appendicular inflammation as the cause of right-sided abdominal abscess. From his experience of 24 cases of typhlitis, Tait made it clear that the allegedly numerous varieties of this disease could not be differentiated without operation and stated :

"The conclusion is inevitable that the earlier operative intervention is employed the better for the patient . . . the risk of an unnecessary incision is so slight and the risk of a delayed incision, which was necessary, so enormous that I am disposed to lay down the imperative rule that as soon as a diagnosis of typhlitis is established no attempt should be made by delay to ascertain which variety it belongs to, but that a surgical operation in search of pus should at once be done."

Like all his contemporaries, Tait adopted a cautious attitude towards right-sided inflammation in the abdomen and thought that it was often the result of typhoid fever—in seven of his cases there was a recent history of typhoid. It is clear, however, that between 1880 and 1890 he recognised increasingly the high proportion of cases of typhlitis which were due to primary disease of the appendix. As we read it today his article on typhlitis and his case-records could well be entitled the Surgical Treatment of Appendicitis. Had Tait not abhorred the expression "appendicitis" he would long ago have been credited with the initial advances in the management of the disease. It is curious that, having safely removed at least two acutely inflamed appendices, he should have reverted to a conservative drainage procedure, but it must be recalled that up to 1890 elective intraperitoneal operations were still regarded as dangerous, that anæsthesia was by no means safe, and that there was a certain reluctance to remove even a vestigial organ such as the appendix, in case it served some important function. In 1890 Sir Frederick Treves was preaching a conservative doctrine for the management of appendicitis, but Lawson Tait was relatively immune to the influence of his contemporaries! It is probable that Tait returned to the advocacy of removal of the inflamed appendix soon after 1890 when the wave of enthusiasm for early appendectomy was propagated across the Atlantic in the writings of Fitz, McBurney, Deaver, and Fowler.

Although Lawson Tait recanted after his early successes he should be recognised as the pioneer in the treatment of acute appendicitis and it is surely worthy of record that this British surgeon has such an achievement to his already illustrious name.

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Public Health

THE PUBLIC HEALTH IN 1955

Chief Medical Officer's Report

FROM year to year, in the opening lines of his annual report, the chief medical officer of the Ministry of Health recalls some of the features of the year that are not strictly under his authority or control—the weather, for example. Dealing with 1955 in the report [1] published last week, Sir John Charles has the pleasant duty of referring to a dry and sunny summer with "abundant opportunities for recreation and relaxation." Next year his words may have a less happy ring.

CANCER

The report urges a more optimistic attitude to malignant disease, with greater emphasis on prevention. The professional and public attitude to cancer was very much in danger of becoming one of helpless resignation in face of the apparent inevitability of the disease; and it was often forgotten that certain cancers, such as the scrotal cancers of chimney sweeps and mule spinners' cancers, had been prevented and were now rarities. This had been achieved long before the discovery of the specific carcinogenic agent. It was not, therefore, too optimistic to hope that modern research might in time reveal the way to the prevention of the cancers which remain.

Cancer of the lung was causing most anxiety. There could be little doubt that this condition was on the increase and had probably been increasing since 1920. Grave suspicion had been thrown on two exogenous sources of carcinogenic material—tobacco smoke and atmospheric pollution. The first is very much a matter of choice; and in many countries, as the report points out, those who wish to avoid all contact with tobacco smoke are helped to do so by wider and more stringent prohibitions of smoking in public transport, cinemas, theatres, and other indoor places of public entertainment than is the case in this country. This practice, Sir John remarks, deserves at least study, if not imitation. On this important matter of carcinogens in everyday life, the report has this to say :

"Civilized man appears to be increasingly surrounding himself with an unnatural chemical environment whose carcinogenic potentialities are being gradually explored. To what extent human cancer is caused by environmental carcinogens is not yet known but, as more and more of the chemical substances which man inhales, absorbs, or ingests are being proved carcinogenic to animals, it seems reasonable to infer that certain cancers of the human body may be initiated or promoted by such substances. The long latent period usually separating the first contact of an agent and the first signs of established malignant disease tends to make the ascertainment of direct proof of causation a long and laborious business and such proof may never be forthcoming."

"Parallel with the search for specific environmental factors, the local health authorities can take every opportunity of acquainting the public with the known facts about it and of dispelling the misconceptions so commonly held about cancer and the secrecy surrounding it, whilst not neglecting to teach the importance of recognizing the earliest symptoms of cancer and of taking prompt effective action when such symptoms appear."

UNIDENTIFIED NEUROTROPIC INFECTIONS

Among the neurotropic infections of unidentified cause, the non-paralytic poliomyelitis element was again conspicuous in 1955. Though it was impossible to identify the disease from which many of the patients with signs of non-paralytic poliomyelitis were suffering, it was virtually certain that they did not harbour a known poliomyelitis virus. Similarly, no recognisable cause had been found for the outbreaks of aseptic meningitis. What the report calls "perhaps the most disturbing of these occurrences" was the outbreak of encephalomyelitis at the Royal Free Hospital in London, about which little has been made known since the statement issued a month after it began.[2] There were 292 cases in this outbreak, including 149 nurses and 27 doctors. Despite very exhaustive epidemiological and laboratory investigations no clue whatever to the cause of the infection was uncovered. A neurologist visiting this country from Durban confirmed that the Royal Free condition was identical clinically with that seen earlier last year among nurses in a hospital in Addington, near Durban. 14 nurses were known to have left the Addington hospital and come to the United Kingdom after the Durban outbreak began, but no direct contact could be traced between them and anyone at the Royal Free.

1. Report of the Ministry of Health for the year ended Dec. 31, 1955. Part II. On the State of the Public Health. H.M. Stationery Office. Pp. 264. 9s.

2. See *Lancet*, 1955, ii, 351.

USE OF PROPHYLACTICS

The growing number and variety of effective immunising agents may shortly prove an embarrassment, the report remarks. As most of them must be given by injection during a fairly short interval in infancy, their number has very nearly reached the limit to which parents might be expected to allow their children to submit without question. To meet this objection, combined prophylactics have been used, but (quite apart, it might be added, from greater risk of paralytic poliomyelitis with combined antigens) there are technical difficulties which impose a definite limit on how far these substances may be mixed in a practicable volume of vehicle and still retain a satisfactory immunising power. A better solution may be to find prophylactics that are effective by mouth or to protect the infant at risk by immunising his brothers and sisters so that he is surrounded in the family by immune persons who form a barrier against that particular infection until he can himself be actively immunised. The report says that B.C.G. might with advantage be used in this way.

TUBERCULOSIS

The striking decline in the damage done by tuberculosis in the past six years "must be a source of great encouragement to all concerned and justifies a sober hope that a continuation of their efforts should see the end of tuberculosis as an important public health problem in the not too distant future." The gain would be great, the report adds, since tuberculosis still ranks as by far the chief of the group of infectious diseases, especially in the most productive years of life. In 1955 it caused 67% of all deaths due to infection, and no less than 78% in the age-group 15–39. Case-finding will become of even greater importance, and the chief need is not for newer and better methods, but for fuller and more judicious use of the ones already available.

In 1955 the examination of contacts of diagnosed cases produced 8% of new notifications. This may seem a disappointingly poor return for much difficult and time-consuming work, the report continues, but it should be remembered that contacts are at greatly increased comparative risk. There is evidence that the search can be much more rewarding if it is not confined to the patient's nearest relatives. The need for a wider examination of contacts is reflected in the 1955 average of only 4·3 contacts examined for every case diagnosed.

In recent years mass-miniature radiography detected no less than 18% of new cases. As tuberculosis incidence falls, selective surveys should be made of areas and social groups where the infection-rate is high.

The present B.C.G. vaccination schemes, the report recommends, could profitably be carried out with more intensity, especially round known sources of infection.

EXPECTATION OF LIFE

A table in the report compares the expectation of life at birth and at one year throughout the past century. It shows the striking fact that infant mortality has been virtually eliminated as one of the causes of diminished expectation of life. In 1841 the expectation of the newborn child was 7 years less than that of the survivor of 1 year of age for boys and 6 years less for girls. There was little improvement 70 years later when the differences were still 6 and 5 years respectively. Now there is no difference for boys and no more than 1 year for girls.

NATIONAL BLOOD TRANSFUSION SERVICE

Each year, since 1946, the amount of blood needed by the hospitals has steadily increased; and in 1955 just over $3^1/_2$ times as much blood was issued to hospitals as in 1946. The increase over 1954 was some 45,000 bottles, the largest annual increase since 1952. From 1947 until 1954 there was an accompanying gradual drop in the consumption of plasma; but the increased use of plasma-substitutes has approximately balanced the reduction in the amount of plasma given. In 1955 the quantity of dried plasma issued increased for the first time since 1947.

INFECTIOUS DISEASES

For the second successive year there was no case of *smallpox* in England and Wales. But this "should by no means encourage the complacency which is so apt to blunt the vigilance which must be maintained if the country is to be kept free of this still serious and often fatal disease." It was disappointing that such a low proportion of children was vaccinated. The "acceptance-rate" in 1955 was 36·4% of live births.

Although the number of deaths from *diphtheria* rose from 9 in 1954 to 13 last year, this was the second lowest total on record and compares with an annual average for 1933–42 of 2783. The total of notifications (155) was the lowest ever. The small outbreaks that occurred in 1955 "emphasise that if the proportion of unimmunised persons is high a diphtheria infection can gain momentum." The number of children given primary immunisation fell from over 100,000 in 1954 to 86,579, and of those given booster injections from 588,288 to 510,204. Only 36·7% of children were immunised before their first birthday, "still barely half the number considered to be advisable to ensure adequate and continuing community protection"; unless steps are taken to impress the public that the protection of all infants is still essential, "the unnecessary sacrifice of child life is likely to go on, if not to increase."

In 1955 there were more cases of *measles* (693,803) than in any year since notification started in 1939: in 1954 there had been fewer than ever before (146,995). Although, as a result of this increase, there were more deaths (176 compared with 50), the fatality ratio reached the new low record of 0·025.

There was a further remarkable drop in both the incidence and mortality of *whooping-cough*. There were 79,133 cases (105,912 in 1954) and 88 deaths (139 in 1954). Of the deaths, 60 were of children under 1 year of age. Discussing the timing of whooping-cough immunisation, the chief medical officer says that as yet the evidence available is not sufficient to justify changing existing procedure.

It seems that certain strains of the *paratyphoid* bacillus are changing their character and thereby causing an acute gastro-enteritis closely resembling food-poisoning, rather than a typhoid-like fever. During 1955 there were a number of outbreaks in which none of the illnesses resembled classical paratyphoid fever.

Notifications of *dysentery* continued to show an increase which would be alarming if the disease had retained the virulence it had 40 years ago. But the case-mortality ratio has declined enormously, largely because of the preponderance of infections by *Shigella sonnei*. The increase is certainly partly due to better notification, thanks to the coverage now offered by the Public Health Laboratory Service and to the greater interest aroused among doctors thereby.

Vaccination against Poliomyelitis

The Ministry of Health announces that from the middle of January supplies of poliomyelitis vaccine are to become available at regular intervals. For some time vaccination will be confined to the remaining $1^1/_2$ million children born between 1947 and 1954 who were registered for this purpose earlier in the year. General practitioners (regardless of whether they provide services under the National Health Service) will have the opportunity to vaccinate any children thus registered who are their patients. A pamphlet (E.C.N. 218) on the storage and use of the vaccine has been prepared for the information of practitioners.

N.A.P.T. in a Wider Rôle

This year the National Association for the Prevention of Tuberculosis amended its constitution to include responsibility for diseases of the chest and heart. The association's first leaflet in this additional field deals with bronchitis.[1]

Trade Effluents

The Central Advisory Water Committee has set up a subcommittee to inquire into the law dealing with trade effluents. Any person or body wishing to give evidence should send a memorandum to Mr. H. R. Pollitzer, secretary of the subcommittee, at the Ministry of Housing and Local Government, Whitehall, London, S.W.1.

1. Bronchitis: its causes, treatment, and prevention. Published by N.A.P.T., Tavistock House North, Tavistock Square, London, W.C.1.

Special Articles

MEDICINE AND THE DRUG INDUSTRY IN GERMANY

FROM A CORRESPONDENT

IN Western Germany today the greater part of medical practice is carried out under National Health Insurance. All who earn £750 a year or less are compulsorily insured, and those with higher incomes may use the service if they wish. The patient who wants to consult a doctor must obtain a form, which is valid only for the current quarter. This facilitates change of doctor from quarter to quarter and thus increases competition between practitioners.

Many patients are bent on getting their full share of the insurance benefits. It is difficult to blame them, because their contributions are enormous compared with those in this country. An employee earning £500 a year pays 10·5% (£52 10*s.*) a year for sickness benefit (3·5%), unemployment benefit (1·5%), and old-age pension and medical treatment (5·5%), and his employer has to pay as much again for him: the total contribution for him is therefore 21% of his gross earnings. It is not surprising that he expects his doctor to prescribe the most expensive medicines he can think of. The authorities have erected barriers against this. The doctors must not prescribe for more than a certain sum for one patient during one quarter. The cost of all his prescriptions for all his patients is averaged, and if the average exceeds the permitted amount considerably, and without good reason, he must pay the excess. This threat hangs heavily over the busy doctor, who cannot possibly keep account of all his prescriptions and their cost; and the doctor must therefore be cautious with his prescribing, much to the chagrin of his patients. A man receiving 20 tablets of phenobarbitone who happens to notice the modest price on the package believes at once that the doctor prescribes only the cheapest remedies. If this happens during the first week of the quarter he may tell the doctor that "I have not had anything this quarter," meaning that the doctor ought therefore to be quite uninhibited in his prescribing. Many patients rush to their doctor at the start of the quarter while his prescription account is still fresh; in the last month of the quarter he "cannot prescribe any more."

Often the doctors help to overcome this difficulty by giving the patients proprietary medicines from their drawer, which is filled with the samples pouring in every day.

THE PHARMACEUTICAL INDUSTRY

The influence of the pharmaceutical industry is overwhelming. A book issued by their trade association, the "red list," has become a kind of supplementary textbook of medical practice. It lists, on almost 1000 pages, the names, doses, and prices, sometimes also the composition and the indications, of all proprietary preparations (about 6000 of them) made by 565 different firms in Western Germany. Most of these are small firms which account for about 85% of the trade. The remaining 15% of trade is done by the 30 biggest firms. Obviously, no doctor can remember more than a few of the names of these products, and still less what they contain. Very few of these products contain only one substance. The overwhelming majority contain several or many; five to six is the rule, and more than ten not at all rare. In one case a firm has put twenty-two different substances into one tablet.

The main cause of this multiplication of remedies is the competition between the many firms, which induces them to keep on producing new and "better" preparations. Normally a firm seeking to market new products sets up a chemical and pharmacological laboratory for experimenting with different substances. But this is costly and takes time, and it is done by only a few (probably not more than 20) firms. Their work has been rewarding, as is shown, for instance, by the interesting recent work on sulphonamide compounds that lower the blood-sugar level. The other 500-odd firms find it easier to produce a "completely new" drug by combining from five to twenty-two known substances. These combinations are chosen quite arbitrarily: the main determining factor is whether a particular combination is already on the market. Whether hormones are combined with vitamins, or antibiotics with alkaloids, or all of them together, does not matter as long as the doses are so low that they cannot do any harm (although, of course, they cannot do any good either). The new product is then extolled as a combination of naturally active ingredients (*nativer Wirkstoffkomplex*) the "constituents of which are balanced carefully" to act as synergists and stated to act on a number of organ systems, amongst which the vegetative nervous system and the diencephalon are often cited. It is recommended for use in common conditions such as arteriosclerosis, hypertension, common cold, and rheumatism. This kind of compound does not usually contain any substance in a pharmacologically effective amount, and can, therefore, at best, act only as a placebo.

A variant of this method of production is to incorporate an effective dose of a well-known drug in a combination of various other substances which are included only in low and ineffective dosages. This kind of "new drug" may, of course, be effective, though it is but an old drug in a new setting. In many cases only some constituents are named, or the dosage is given only for some. Particular favourites are such substances as phenobarbitone, atropine, ephedrine, and salicylates. The "red list" includes over 500 proprietary preparations containing both phenobarbitone and atropine (or belladonna), apart from other, less active, substances in varying proportions.

One consequence of this flooding of the market with multi-substance proprietaries is that it has become unfashionable to use one drug by itself. Even charcoal is offered in combination with sulphonamides, and when I asked for ephedrine tablets in a big hospital I was told that these were no longer stocked.

It all sounds incredible, but it is true. The clearest evidence is the existence of 565 pharmaceutical firms, all of which seem to be making a profit. They spend enormous sums on advertising. The weekly, fortnightly, and monthly general medical journals in Western Germany contain about 12,000 full pages of drug advertisements a year, at an approximate cost of 10 million D.M. (£840,000). In addition, each doctor receives a daily shower of leaflets, propaganda brochures, and unsolicited samples; our daily mailbag in this country is quite modest by comparison. It is impossible to estimate the cost of these, but the postage alone must exceed 10 million D.M. a year. The leaflets are often lavishly produced and costly. Probably the drug industry in Western Germany spends at least 100 million D.M. (£8,400,000) a year on propaganda. This sum must be borne by the consumer—namely the health insurance and its members. One wonders what an economist would have to say about these figures.

Naturally the question will be asked: Why do doctors prescribe such preparations? The answer lies in the persistent clamour of the circulars which is echoed in the medical press, and the demands of patients who are not satisfied unless they get something new and expensive.

THE MEDICAL PRESS

Compared with this country, Western Germany has a very large number of general medical journals (five

weeklies, five fortnightlies, and five monthlies), and it is obvious that not enough interesting discoveries, new drugs, reviews, or even case-reports can be produced to fill so many journals week after week or month after month, and consequently these are often obliged to use material which even first-class editing cannot transform into something valuable. Many of the papers are about new drug combinations. Such papers do not necessarily give all the constituents or their exact amount. Neither the authors nor the journal always insist on the publication of these essential points, and the new drug is a partly or wholly a secret one. This prevents the investigation of the experimental results by a neutral and possibly critical observer. Often a paper praising some new proprietary drug is accompanied by a full page advertisement of the same drug on the adjoining page. It is tempting to conclude from such observations that large parts of the medical press depend on the industry and therefore must serve their interests. Fortunately the "scientific" journals, the quarterlies, do not present such a gloomy picture. Although their standard fell appreciably during and after the war, they have now improved remarkably.

THE OPPOSITION

It is natural to ask what medical leaders have done against this undesirable development. Nothing decisive has been achieved so far. The pharmacologists who stand in the first line of battle have made various but uncoördinated attempts to attack the attitude of pharmaceutical firms. Some of these attacks have been directed against particular products, and written with biting clarity and fervour.[1] W. Heubner, the doyen of German pharmacology, has, during recent years, fought a valiant battle against the bad habits of part of the industry. This year he organised a number of lectures given at the Deutsche Therapiekongress at Karlsruhe, but neither the medical press nor the industry took much notice of these. On the contrary, most journals are unwilling to publish any general criticism directed against proprietary drugs or against the industry, even if it comes from the most reputable source.

In these circumstances, the daily press is the chief medium in which the policy of the industry can be attacked, and attempts in this direction have been made, for instance, by Dr. Paul Kühne, a medical free-lance journalist, in the Berlin *Tagesspiegel*. On the whole, however, the medical profession, although fully appreciating and strongly disapproving of the situation, remains strangely inactive. Apparently it feels that the doctor is powerless. Its hope is that a new drug law will restrict propaganda by the industry and thus force it into more reasonable activities.

The whole situation is of great interest to us in this country. Only very recently a few pharmaceutical firms have adopted habits similar to those which are general in Germany. The volume of advertising in the medical press and by post has increased considerably; senseless combinations of drugs have appeared on the market and the therapeutic effects claimed have been far in advance of the facts.

Fortunately the reaction to this development has not been delayed,[2 3] and correspondents have disapproved of certain proprietary drugs or the advertisements of them.[4–7] It is to be hoped that this reaction will be strong enough to prevent developments which, as the German example shows, would be difficult to redress.

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In England Now

A Running Commentary by Peripatetic Correspondents

CHRISTMAS decorations have come again; but to connoisseurs of Life the most significant thing in Regent Street is still the contrast of those adjoining shops on the left-hand side as you go up. In the windows of one, whatever the weather, nobody wears more than some kind of pink elastic belt. But the girls next door are little if any luckier; for even in high summer they can't (for what I take to be the obvious reason) remove the heavy furs in which they're draped.

For years I was troubled by this glaring example of our failure to distribute the possessions of mankind more equitably. I condemned the capitalist owners of these shops because, intent on their own business, they never came to an arrangement whereby the young ladies in the two windows could share the furs and the elastic belts between them, none being either overdressed or underdressed at any time of year—all being supported by a modicum of elastic and protected by at least a little mink.

But latterly I've grown wiser. I now see that the worst fate for the world will be the uniformity we're so rapidly approaching. When I was a boy there were quite high mountains: but day and night they're being eroded by rain and frost, so that sooner or later our Earth will be one flat plain. Soon too, thanks to human effort, there'll be no further point in travel, because, wherever one goes, the towns and the people will be just the same as at home—with the same Woolworths and the same thoughts. Similarly, by extending the season for everything—green peas in winter and football in summer—we're making every day as nearly as possible like every other. Already Christmas begins long before Guy Fawkes month has ended; and if this overlapping continues I foresee a time when everyone in the world will sit down daily at a table loaded simultaneously with Michaelmas goose, Christmas turkey, Shrove Tuesday pancakes, and Whitsun gooseberries, enlivened by Bonfire Day fireworks, Christmas crackers, and Easter eggs.

When every place and every person and every day is alike, there'll be no fun in any of them. So I salute the ladies of the two windows in Regent Street for being different and sticking to it—at whatever discomfort.

* * *

Giving polio vaccinations can be a pleasant task when you work in the country, for there are always children who live in such isolated places that they have to be visited in their homes. So one sets off with a list of addresses and a supply of vaccine on what our office calls a polio milk-round.

Discovering people's whereabouts in a rural district is always an interesting business. Many of them have names for their houses, but they seem very reluctant to put the name on their gate. Others, more simply, do not have a house name at all and are known as Mrs. Bloggs, The Street, or Mrs. Blank, near the Red Lion. However there is usually someone about who can put you on the right track; and the village shop, if there is one, is always a reliable source of information. Failing that, one can call at the local police-house. Having located the house the next task is to gain admission, and in these days of powerful wireless sets it is often difficult to make one's knock heard above the cheerful strains of music while you work. The correct procedure, in which I have now been instructed, is not to bang on the door with one's hand, but to kick it hard with the foot. This method, although sometimes damaging to the paint, always seems to produce results.

Once inside there is invariably a warm welcome, and while the child is being fetched my eye wanders round the photographs which are proudly displayed on the sideboard. Is that slim young bride the buxom mother that has just opened the door to you? And are the elderly folk in the old-fashioned clothes grandparents or great-grandparents? The injection once given and offers of refreshment politely but firmly refused, one chats for a few moments with the family who want to know when the rest of the children will be vaccinated. Then one sets off for the next port of call and the procedure is repeated.

I was fortunate in that none of the cottages on my visiting list were across fields. Perhaps the statisticians will produce some of these next time.

* * *

On embarking on the earlier stages of parenthood, few of us bear carefully in mind that strange facet of our new-found responsibilities—the Christmas concert. This arduous event strikes one down with unexpected suddenness towards the end of the eldest's first term. Our first intimation was the return of Bill (aet. 5) with the demand to be dressed fully as a gollywog by Monday: furthermore, he added darkly, Miss Bodsworth Says So. Trembling before this awful authority my wife spent the few nights remaining feverishly dying gloves and socks and sewing masses of horrible black wool round a balaclava helmet. She was fortified by relief at not having to make him into a train—a fate which befell a colleague. Endeavours to discover the nature of the entertainment were of no avail. "Well," he patiently explained: "the Nursery Class is just singing, and so are the Kindergarten. Form 1 is Jesus and God and things, and we're actisising." And he really didn't look very gollywogian.

The great day dawned, and the scene revealed itself as a toyshop at midnight. The 35-odd kids, each dressed as a different toy, were activated one by one via a fairy. Bill did look rather sinister, his mask had slid down and pink cheeks were shining through the great white eye-sockets. As expected it was the unscripted bits that won the applause, the disappearance of the fairy for urgent personal reasons, the argument with a leading actor who was unaware of a recent change in routine, and of course much waving to Mummy and Daddy at the back. However there was a great gasp of approval at the general décor, and, from the far side, a very small child made my wife glow with pleasure at his unsolicited testimonial: "Look" he cried, "a gollywog."

* * *

At some cost we had ordered peat to feed some newly planted shrubs. When it arrived there was a morbid familiarity about the look of the stuff. This sort of sensory nostalgia was certainly associated in my mind with death and decay, and then it came to me. This was not real peat, it was none other than "tan" which, when I was a child, used to be laid in the streets of cities and towns outside the houses of the sick to deaden the clip-clop of horses hooves and the rattle of wheels over the cobbles. In those days, even without clinical access to a patient, progress could be gauged quite accurately, since the presence of "tan" made it pretty clear that the sufferer was held to be in a fairly serious state, while its sudden appearance outside a house in which there was known to be illness was a clear indication of a worsening prognosis.

People today, accustomed to rubber tyres and smooth tarred or concrete roads, will no doubt find it hard to credit that all this really used to happen within the lifetime of many of us. And the use of a fairly expensive commodity like "tan" for such a purpose, literally by the on, is one more reminder of the falling value of money.

* * *

I know a G.P. who plugs his stethoscope with masticated newspaper, to ensure, he says, "a breathless hush in the Close tonight." All this is because (1) he has no time in his seething surgery to examine a chest properly; (2) if he had the time, he couldn't interpret any noises he might hear, because he's forgotten what they signify, because it's been so long since he had time to examine a chest properly; and (3) anyway he'll have to get it X-rayed in case somebody sues somebody.

All this proves that the pen is mightier than the stethoscope and that Medicine is losing its panache. What chance has a 'Biro' against the fur-edged cape, the alembics, stuffed crocodiles, and clyster-horns, or more latterly even a top-hat? When we all work for Big Brother and have a red stripe down our trousers and a hat like a postman's, we shall carry on our lapels a curlicue of black braid, representing a vestigial stethoscope and causing us to fret our memories with vain regrets.

Meanwhile the stethoscope affords the commercial artists a handy label when portraying a doctor, and at Christmas it enables the householder to recognise with relief the one person he won't have to tip.

Letters to the Editor

CORTISONE AND ULCERATIVE COLITIS

SIR,—I have read with the greatest interest the article by Mr. B. N. Brooke (Dec. 8). As Mr. Brooke has been one of the pioneers of modern surgical treatment of ulcerative colitis, his observations and opinions must be regarded with respect. In essence, his article can be reduced to two statements:

1. The continued use of cortisone for more than a month in a patient who has not already shown improvement is liable to cause increased friability of the colonic wall which is sometimes so great that the colon may actually disintegrate and thus render even surgery hopeless.

2. To avoid this risk, no patient should be treated for longer than one or two weeks with cortisone if he has not already shown improvement.

It seems to me essential that the first of these statements should be seen in its proper perspective; and that the second should be examined in the light of whatever data impinge upon it. Some relevant information can be drawn from the controlled trial of cortisone therapy in ulcerative colitis to which Mr. Brooke refers.[1 2] In the absence abroad of Prof. L. J. Witts, who acted as chairman of the group of physicians who organised that trial, perhaps I may deal with these issues myself:

1. Of the 210 patients in the trial (109 on cortisone therapy and 101 controls), 24 were treated by ileostomy (with or without simultaneous colectomy) during the trial period or within the next six weeks because medical measures were failing to control the attack. Of these 24 patients, 9 were in the cortisone group and 15 in the control group, so that fewer patients in the cortisone group were judged to need surgery. Furthermore, the early results of surgery were as follows:

Group of patients	*No. treated by ileostomy during or soon after trial period*	*No. who died after operation*
Cortisone	9	2 (*22·2 %*)
Control	15	6 (*40·0 %*)

It will be seen that the results of surgery were similar in the two groups, the better results for the cortisone group not being of any significance in view of the small numbers involved. However, there is certainly no evidence that patients treated with cortisone had their chances of survival prejudiced if medical treatment failed and it became necessary to resort to surgery. It therefore appears likely that the phenomenon described by Mr. Brooke is not sufficiently common to militate seriously against the use of cortisone in ulcerative colitis.

2. Nevertheless, every effort should be made to avoid even occasional disasters such as those described by Mr. Brooke, and I agree with his general thesis that corticoid therapy should not be continued indefinitely if the patient fails to improve. Indeed, I have already committed myself to the following opinion: "However, not all patients show a favourable response to cortisone and when this agent is being used there should be no hesitation in stopping treatment with it if the patient does not begin to show some improvement in three to four weeks, or earlier if there is actual deterioration."[3] Likewise, in the controlled trial already reported and in another trial now in progress, the physicians taking part have been left free to stop treatment before the full period of six weeks has elapsed if they are satisfied that the patient is failing to respond. Mr. Brooke and I are therefore in full agreement in principle and all that remains is to decide exactly for how long cortisone should be continued if improvement fails to occur, it being granted that actual deterioration of the patient's condition will usually cause the physician to stop this form of treatment forthwith. Re-examination of the original data of the first cortisone trial yields the information in the accompanying table.

My own reaction to these data is as follows: one week of treatment is insufficient for judging the final response to cortisone; for 2 out of every 5 patients who are in remission at the end of treatment have shown no obvious response after

1. Truelove, S. C., Witts, L. J. *Brit. med. J.* 1954, ii, 375.
2. Truelove, S. C., Witts, L. J. *Ibid*, 1955, ii, 1041.
3. Truelove, S. C. *In* British Encyclopædia of Medical Practice. Interim Supplement. London. (In the press.)

NUMBERS OF PATIENTS FAILING TO SHOW BENEFICIAL RESPONSE AFTER ONE AND TWO WEEKS ON CORTISONE THERAPY IN RELATION TO THEIR CLINICAL GRADING AT THE END OF SIX WEEKS' TRIAL

Final grading after 6 weeks	No. of patients	No. of patients not improved	
		After 1 week	After 2 weeks
Remitted	45	19 (*42%*)	4 (*9%*)
Improved	30	13 (*43%*)	12 (*40%*)
Unchanged or worse ..	34	31 (*91%*)	34 (*100%*)

one week's therapy, and at the other end of the scale some patients show temporary improvement during the first week of treatment but fail to maintain it. By the end of two weeks, the picture has become more clear-cut. By this time, more than 9 out of every 10 patients who will be in remission at the end of six weeks' treatment have already shown benefit, while, at the other end, those few patients who show only a very brief improvement with cortisone have already relapsed.

I should therefore like to suggest the following general rule for the use of cortisone in an attack of ulcerative colitis: in the absence of frank deterioration of the patient's condition, cortisone should be continued for at least two weeks, but if no improvement has occurred in three or four weeks it should be discontinued. This is little different from Mr. Brooke's opinion, provided that his upper limit of two weeks is adopted.

I cannot end without expressing thanks to Mr. Brooke for raising this important issue, which was unfortunately not discussed in our reports on the cortisone trial.

Oxford. S. C. TRUELOVE.

X-RAYS AND LEUKÆMIA

SIR,—Some people have recently refused to have a chest X-ray because they have read that "X rays cause Cancer." This was apparently the headline for some articles in national newspapers about the work which Dr. Alice Stewart and her colleagues reported in your issue of Sept. 1. In other cases resistance to the idea of having a chest X-ray may have resulted from articles about the dangers of damage to genes from atomic and other radiations. Dr. Stewart's paper has added fuel to the fire. It is worth while to be clear about what she has found.

Her preliminary studies have given statistical grounds for suspecting that a small proportion (8%) (Dec. 1, p. 1141) of the small number of deaths in children due to malignant disease including leukæmia are associated with *abdominal* X-ray examination of the mother during pregnancy. So far no estimate can be made of the risk that such examination will in fact cause malignant disease in the child.

The incidence of "other X-rays" was equal in the mothers of children who died from malignant disease and in the control mothers with healthy children. There is no suggestion that chest X-rays can be incriminated.

Dr. Stewart's findings should make us think hard about our use of X-rays. It does seem, however, that it is *abdominal* X-ray examinations of pregnant women which are suspect, not all "antenatal X-rays" (Dec. 1, p. 1141). On the present evidence there is no suggestion that there is any danger from chest radiography carried out with careful technique after the twelfth week of pregnancy. "Routine antenatal chest X-rays" discover a number of unsuspected cases of tuberculosis in mothers and allow these women to have treatment and their infants to receive B.C.G. They should continue.

As for mass radiography, those of us who believe (see Dr. Pugh and Dr. Jeanes, Nov. 17, and Dr. Marsh, Dec. 1) that annual chest X-rays of at least some groups of adolescents and adults have an important part to play in the eradication of tuberculosis will have to add "safe" to the "free, quick, and confidential" which we now use in "selling" mass radiography of the chest. We can do this with a clear conscience. The Medical Research Council's report (Cmd. 9780) states that "mass miniature radiography . . . represents a relatively unimportant source of radiation to the gonads." The gonad dose of radiation from an M.M.R. chest X-ray is 0·25 milli-röntgens in the male, 0·15 mr. in the female. We are ordinarily exposed to 100 mr. each year from our surroundings.

Department of Public Health, Bristol. ALLAN M. MCFARLAN.

ANTENATAL RADIOLOGICAL EXAMINATION

SIR,—I am sure that very many clinicians and radiologists will support the view taken by Dr. Rohan Williams and Mr. Humphrey Arthure (Dec. 8). There is a danger that obsession with a very slight radiation hazard may result in a real increase in risk to the infant and mother through omission of a necessary radiological examination. The evidence of a rise in the incidence of leukæmia in children during the past twenty-five years is open to grave question. We need to bear in mind that prior to 1939 there was no pathological service in this country as we know it today, that in 1946 this service was still in process of extension, and that only in the past very few years has it been available at its present high standard. It is certain that formerly death from leukæmia in childhood was commonly ascribed to other causes, of which many were far more prevalent than they are today (e.g., diphtheria and septicæmia). General recognition of the atypical features of many cases of leukæmia has also resulted in the diagnosis being made when it would not have been entertained ten or twenty years ago.

While appreciating the value of Dr. Alice Stewart's work, I am sure that the risks of antenatal radiology can be correctly evaluated only by study of a much larger series than it has been possible to review so far. Meanwhile clinical judgment should not be swayed too readily by the existing evidence.

Central Middlesex Hospital, London, N.W.10. F. PYGOTT.

ERADICATION OF TUBERCULOSIS

SIR,—The letter of Dr. Pugh and Dr. Jeanes (Nov. 17) is most interesting to those of us primarily concerned with problems in tuberculosis. The essence of their letter is that case-finding measures should be intensified. With this we all agree, but the existing simple "loopholes" must at the same time be closed. Two of these are the regular surveillance of patients with chest X-rays which show a so-called "old scar" and the reassessment of cases previously regarded as recovered or cured.[1]

A further "loophole" is the failure to notify tuberculosis once diagnosed. This has been stressed many times; but notification simply to ensure adequate contact examination is of the utmost importance, as this is the most fruitful of case-finding measures. It applies equally to extrapulmonary tuberculosis, and it is in such cases that the notification is apt to be overlooked.

Last February a man, aged 56, was diagnosed as having a tuberculous wrist-joint but his case was not notified. Nine months later his daughter was referred and found to have gross bilateral pulmonary tuberculosis with a positive sputum. During the whole of this time she had been working in an office with numerous other young people, and, although the mass-radiography unit had visited the factory, she had not attended because she was afraid she had tuberculosis. Had her father's case been notified at the time of diagnosis, his daughter's disease would have been diagnosed and brought under control much earlier. Of course, she might have refused contact examination, but once a source case is known pressure can be brought to bear on the non-attenders, and it is in these

1. Beresford, O. D. *Brit. med. J.* 1956, i, 1298.

non-attenders that most of the new cases of tuberculosis will be discovered.

My plea in short is for all practitioners to notify tuberculosis whether it is a pleural effusion or any form of extrapulmonary disease. If this is diligently carried out another loophole will be closed and further success obtained in the tracing of the undiagnosed and infectious case of tuberculosis.

Bournemouth. O. D. BERESFORD.

SYMPOSIUM ON HOSPITAL COCCAL INFECTIONS

SIR,—Under the auspices of the Association of Clinical Pathologists a symposium on the above subject is being held on Wednesday, Jan. 2, from 10 A.M. to 6.15 P.M. at the London School of Hygiene and Tropical Medicine. As this subject affects all doctors concerned with hospitals the meeting is open to anyone interested. Programmes may be had from our meetings secretary, Dr. J. N. Cumings, National Hospital, Queen Square, London, W.C.1, who would like to know how many are attending so that tea may be provided.

Sheffield. E. H. GILLESPIE
Hon. secretary, Organising Committee.

PREVENTIVE PSYCHIATRY

SIR,—I would like to comment on one or two points raised by Dr. Sandison in his most interesting letter (Dec. 8).

Dr. Sandison questions Dr. Watt's contention (Nov. 24) that an increase in outpatient services would decrease the admission-rate to the mental hospital, because, he says, "relatively few patients admitted directly for the first time to the mental hospital are seen by a psychiatrist beforehand."

This is surely the very function which the psychiatric outpatient services of the mental hospital should fulfil; and, if his contention is true, it is only so because these outpatient services are inadequate and perhaps also because the liaison with the services of the local health authority is insufficiently developed.

It should be possible for the mental-hospital staff to have contact with or knowledge of almost every patient whose admission is pending. This can be effected, quite apart from the ordinary outpatient clinics, through the hospital social workers, the duly authorised officers, the general practitioners in the telephone conversation about the patient, or by the hospital psychiatrist on a domiciliary visit.

The most effective safeguard against the misuse of the mental hospital's beds is, of course, for the patient to be seen before admission, and practically always this can be effected if the mental hospital will arrange for a daily emergency outpatient session, to which any urgent case can be brought for an opinion, to be held preferably at the mental hospital itself or, if this is not practicable, then at the nearest convenient hospital or clinic. This session can be utilised also for the instruction and advice of duly authorised officers and other local-authority workers who are in need of help with difficult cases. Every mental hospital which is reasonably close to a centre of population ought, nowadays, to have its own outpatient department backed by its own facilities for diagnosis and treatment in addition to its usual peripatetic outpatient clinics. If this sort of organisation can be achieved then I am quite certain that unnecessary admissions can largely be prevented and a great deal of psychiatrists' time saved, particularly in domiciliary visiting.

What we need in our hospitals is not more beds at vast capital cost but more efficient personnel of all types and better facilities for investigation and treatment. With these we can make much more efficient use of our existing accommodation. We might even be able to make effective inroads into the problems of overcrowding, but before this can be satisfactorily solved some technique will have to be worked out for dealing with the increasing numbers of geriatric and chronic-sick patients with slight mental enfeeblement, who are now threatening to overwhelm us.

St. Luke's Hospital, Middlesbrough. T. M. CUTHBERT.

BLOOD-GROUPS AND DISEASE

SIR,—I am surprised to see how much space is being wasted in *The Lancet* and *British Medical Journal* on articles dealing with blood-group distribution in various diseases. While many medical papers suffer from the authors' lack of knowledge of statistical methods, more suffer from their misapplication. Knowledge is no substitute for understanding, and mathematics is a poor substitute for accurate observations, reliable laboratory work, and common sense. "The hardest things to explain are those which are untrue."

In his paper of Oct. 27, Dr. Billington reports that the ABO blood-groups of patients with gastric carcinoma differ according to whether the lesion is in the prepyloric area, the body of the stomach, or the cardiac area. But it is noteworthy that, when the figures for these forms of gastric cancer are combined, the distribution of blood-groups for the total is virtually the same as in the general population. To me this suggests that, in assigning the cancer to one or other area, the investigator was subconsciously influenced, in borderline cases, by his prior knowledge of the patient's blood-group. Can Dr. Billington exclude this possibility?

Brooklyn, N.Y. A. S. WIENER.

*** This letter has been shown to Dr. Billington, whose reply follows.—ED. L.

SIR,—I admit I am unable to exclude the possibility that the figures in relation to the site of gastric carcinoma might have been influenced in borderline cases by knowledge of the patient's blood-group; and for this reason, in the addendum to the paper, I suggested that a prospective study be undertaken with rigid criteria, to exclude this source of error. An analysis of hospital records by a single interested observer (perforce myself) must always be regarded with suspicion. Although it appears that a similar relationship holds between ABO blood-groups and the site of chronic gastric ulcer, I will be happy to be proved wrong by better observations which elucidate more clearly the fascinating relationships between the ABO blood-groups and gastroduodenal diseases.

Department of Medicine, University of Sydney. BRIAN BILLINGTON.

SHORTAGE OF RADIOGRAPHERS

SIR,—May I, as a qualified radiographer and a member of the medical auxiliaries, bring to the notice of your readers the grave shortage of radiographers in the National Health Service which, if allowed to continue, must lead to a breakdown in the diagnostic and therapeutic fields of the service.

The November issue of *Radiography* reports that one of the main causes of this shortage is the very poor prospects offered, together with low salary scales. On Nov. 9, after months of protracted discussions, a new salary scale was finally announced, starting at £420 for a newly qualified radiographer and finishing, after many years of experience, at £750 for a superintendent, and £850 for a superintendent in charge of a very large department. Even a teacher of student radiographers receives only £750 at the maximum and, of course, these salaries are subject to the usual deductions such as income-tax, National Insurance, and superannuation. One might argue that it is a fair commencing salary, but what of the married male radiographer who receives only £485 five years after qualifying?

Radiography is certainly an interesting and satisfying job, and the radiographer feels that he is a useful and very necessary member of the diagnostic team—but are these reasons, taken into account with the new but still totally inadequate salary scale, likely to induce modern-day school-leavers, with certificates in mathematics and physics, to enter our profession?

Modern surgery and medicine would be lost without the radiological team. Most hospitals run a 24-hour service, which means that radiographers take it in turn to remain "on call" for emergency duties after the normal working-hours. If radiography still fails to attract sufficient new entrants the remaining radiographers will find it is physically impossible to continue this service; in fact, there are at least four London hospitals whose radiological departments are so understaffed that patients' waiting-lists are growing each day.

It is therefore in the public's interest to make radiography a worthwhile career, and so stop the drift of staff abroad and into industry.

Berkhamstead. R. R. I. BAXTER.

THE WAY WE LIMP

SIR,—I realise that your leading article of Dec. 1 is meant to be a eulogy of the walking-stick and the supporting material is not meant to be taken too seriously! It is, however, a little unfair to pack so much controversial matter into so short a space under such a heading as the Way We Limp.

It was, of course, Pauwels who emphasised the importance in the prognosis of femoral fractures of the angle of the fracture line, and not Per Linton as your reference suggests. The value of Per Linton's work is that he showed that the so-called "abduction" fracture is due to posterior rotation of the head rather than abduction and that a graduated series of cases can be found between it and the adduction fracture, and that this suggests all may be treated in a uniform manner.

The two factors contributing to successful union of fractures of the femoral neck are firstly an effective blood-supply and secondly impaction at the fracture site. The abducted or valgus position implies a certain degree of impaction, hence its success. This impaction, if inadequate after operation, can be increased by early weight-bearing with a suitably placed pin—namely, a long near-vertical pin supported by the calcar femorale. I would suggest that the slight alteration in the leverage of the femoral neck produced by the valgus position is of little disadvantage in recovering the ability to walk and of little importance as a cause of avascular necrosis. The fact that avascular necrosis is "rarely seen when the normal angle between the femoral shaft and neck is preserved" is due to the limited displacement which has occurred in most of these cases with a corresponding lack of damage to the blood-supply, and not, as Blount suggests, to the absence of undue thrust on the femoral head.

It is insufficient to talk of avascular necrosis without discussing complete avascular necrosis, which is followed by non-union and partial avascular necrosis which may permit union but by depriving a segment of the head of its blood-supply leads subsequently to femoral-head collapse.

The doctrine of creeping substitution is based on experimental work and the study of bone-grafts. Unfortunately in the cases—namely, the navicular and the head of the femur—in which creeping substitution would be of value, a great deal of the bone is isolated from a new source of blood-supply by a cartilaginous covering. The reconstitution of the bone from the small vascular source available takes excessive time; and is usually inadequate; and by the time it has occurred the cartilaginous surface of the bone has broken down completely and this does not repair itself. I would like to hear of an avascularly necrotic femoral head which after an adequate period of rest has reconstituted itself and this has been followed by satisfactory hip function for any length of time. In my experience creeping substitution fails to occur sufficiently rapidly for the patient to wait for it, or if they are phlegmatic the function of the hip-joint is quite unsatisfactory. Operative removal of such heads shows a complete breakdown in the cartilaginous covering of the head and often some corresponding disintegration on the acetabular surface.

By all means let us encourage the general public to look on the walking-stick as a good friend, but in doing this there is no reason to persuade ourselves that its use is of much value in preventing complications after fracture of the femoral neck which were either written in at the time of the accident or produced by some complication of a nailing operation.

London, W.1. J. G. BONNIN.

PRIMARY MESENTERIC ABSCESS

SIR,—The lesion described under this heading by Mr. Dudley and Mr. MacLaren (Dec. 8) is not so very uncommon. Surgeons operating for surgical emergencies in this country do not often trouble to report their cases, so that some tolerably well-known conditions appear rare to those who seek their information in the library.

"Primary mesenteric abscess" is probably a misnomer, as by careful search I found broken-down mesenteric glands in two such cases, a fishbone in a third, and rolled-up tomato skin in a fourth. In these last two cases there were no visible perforations.

I cannot agree that "the treatment is drainage and antibiotic therapy." The "large tube" produces troubles of its own, as do antibiotics (and they probably did in the author's case 2). In the absence of special indications these patients do very well with primary closure after the abscess has been sucked out, and without antibiotics.

Radcliffe Infirmary, Oxford. G. J. FRAENKEL.

DANGEROUS CONTAMINANTS IN STORED BLOOD

SIR,—Experienced workers differ widely in the laboratory technique they recommend in transfusion work. In the past two years, to my mind, evidence pointing to the danger of infected blood has accumulated, so it seems important to do a bacteriological slide test on every bottle before issuing it. If this procedure is correct pilot tubes are outdated: the bottle must be tapped.

Both Dr. Discombe (Dec. 1) and Dr. McEntegart (Nov. 3) believe infection is due to some failure to sterilise the taking equipment or to infection when the blood is taken. Zeitlin [1] writes: "It is impossible to avoid the introduction of a small number of skin contaminants in all cases. A survey of specimens obtained for blood culture, and therefore taken under the best possible conditions of sterility, was shown to have a 2 per cent contamination rate, mainly from surface staphylococci."

Dr. Discombe suggests that a bottle that has been entered has a shelf life of only a day or so. Some pathologists do not agree with this view, believing that if a bottle is tapped by a trained worker having full laboratory facilities and using a scrupulous aseptic technique the danger of infecting the blood is virtually nil, and that the tapped bottle may be kept and used till the expiry of its normal life provided it is kept at refrigerator temperature. In those parts of the country where pilot tubes are not supplied this procedure must often have been followed. I know of no evidence that blood tapped and kept in this way becomes dangerous. To tap a bottle and then leave it standing at room-temperature for several hours before use is surely inexcusable.

When I first read of the 1 in 2000 transfusion death-rate [2] I was shocked and incredulous, but on reflection I feel the estimate is probably correct. Wiener [3] cites 9 deaths in 8236 (approximately 1 in 1000). More recently Discombe [4] estimated that the mortality attributable to serological incompatabilities was 1 in 4000–4500 transfusions. This rate is for a large London hospital with, I feel sure, a highly efficient transfusion service: the rate for the whole country may be greater. In addition to deaths from serological incompatibilities, transfusion tragedies may be associated with other factors. Freezing and overheating of the blood are rare causes. Overloading of the circulation with heart-failure is not uncommon; it is seen in 1 in perhaps 500 hospital necropsies; it is often a moot point to what extent the overloading may have contributed to the death. Infected blood, air-embolism, homologous-serum jaundice leading to fatal liver necrosis, transfusion siderosis leading to hæmochromatosis, and very rarely fatal pyæmia following a septic cut-down are all attributable to transfusions. Even in spite of the great improvements the death-rate may be as high as 1 in 2000.

Non-bacterial debris may be mistaken by the inexperienced worker for bacteria; this pinpoints the vital importance of

1. Zeitlin, R. A. *Med. Pr.* 1956, **235**, 347.
2. Zeitlin, R. A. *Nursing Mirror*, Nov. 19, 1954.
3. Wiener, A. S. Blood Groups and Transfusion. 3rd ed., Springfield, Ill., 1943.
4. Discombe, G. *Lancet*, 1952, **i**, 734.

having the laboratory aspect of blood-transfusion dealt with only by adequately trained workers.

Pathology Department,
Worthing Hospital. READ AIDIN.

IDENTIFICATION OF BACTERIAL RESIDUES IN SARCOID LESIONS

SIR,—In their article of Dec. 1, Mr. Nethercott and Dr. Strawbridge state, in connection with their findings of α,ε-diaminopimelic acid (D.A.P.) in such lesions: "It is thought that amino-acids are only found in the human strains of tubercle bacilli (Asselineau et al.[1])."

As it stands, this statement is manifestly incorrect, since the protein of any living organism is made up of amino-acids. In any case, in the paper cited,[1] Asselineau et al. deal not with protein or even whole cells of *Mycobacterium tuberculosis* but with a specific antigenic "lipopolysaccharide" extracted from the organisms. In a footnote (and also in an earlier note [2]) it was stated that D.A.P. was not found in the lipopolysaccharide of the avirulent strains H37Ra, B.C.G., and Vallee; D.A.P. was present, together with alanine and glutamic acid, in the corresponding fractions of the human type strains Aeschbacher, H37Rv, R_1, and Test.

This lipopolysaccharide fraction represents at the most only some 8% of the total cell material of mycobacteria and therefore cannot be representative of the cell as a whole. In fact, in 1951 I demonstrated [3] the presence of D.A.P. in hydrolysates of whole cells of bovine and avian strains of mycobacteria, as well as in a human variety. Later, Gendre and Lederer [4] identified D.A.P. in fifteen different mycobacteria, ten of which were not of human type. Pauletta and Defranceschi [5] found similar amounts of all amino-acids in five strains of mycobacteria which included human, bovine, and avian varieties.

Owing to the very wide distribution of D.A.P. among bacteria [6–9] it is unlikely that demonstration of its existence in a cellular lesion will do more than show the presence of bacteria, other than gram-positive cocci which lack D.A.P. However, the demonstration of the presence of mycolic acid in the lesion could serve as a diagnostic characteristic for mycobacteria in general. Nethercott and Strawbridge have succeeded in doing this and should be congratulated on developing such a simple technique for the test.

Department of Chemical Pathology,
University College Hospital Medical
School, London, W.C.1. ELIZABETH WORK.

MESIATRICS

SIR,—Specialisation in medicine is becoming a matter of necessity or expediency; and it may be argued that by narrowing the field of study, specialisation has brought considerable advances in diagnosis and treatment.

So far, specialisation has been achieved in two ways: by independent consideration of the various systems, organs, or tissues of the body; and by limiting the study of diseases to particular age-groups.

Sir Heneage Ogilvie [10] has suggested that the diseases of those between the ages of 18 and 25 are distinctive enough to warrant another specialty—ephebiatrics. Surely, if the diseases of childhood, youth, and old age merit specialist attention, the medical problems of *middle age* or of those between 40 and 60 are even more deserving of special study or investigation.

1. Asselineau, J., Choucroun, N., Lederer, E. *Biochim. biophys. Acta*, 1950, **5**, 197.
2. Asselineau, J., Lederer, E. *C.R. Acad. Sci., Paris*, 1950, **230**, 142.
3. Work, E. *Biochem. J.* 1951, **49**, 17.
4. Gendre, T., Lederer, E. *Biochim. biophys. Acta*, 1952, **8**, 49.
5. Pauletta, G., Defranceschi, A. *Ibid*, 1952, **9**, 271.
6. Work, E., Dewey, D. L. *J. gen. Microbiol.* 1953, **9**, 394.
7. Hoare, D. S., Work, E. *Biochem. J.* (in the press).
8. Cummins, C. S., Harris, H. *J. gen. Microbiol.* 1956, **14**, 583.
9. Cummins, C. S. *Int. Rev. Cytology*, 1956, **5**, 25.
10. *Lancet*, 1954, ii, 395.

There are several good reasons why middle age should receive specialist attention. In the matter of incidence of death and disease, this age-group is perhaps the most significant statistically. It is made up of individuals in useful employment and often at the peak of their careers, so that special consideration for this group becomes a matter of public importance. At this age the incidence of hypertensive, coronary, neoplastic, and degenerative diseases is high; and by preventive or therapeutic measures we may hope to modify or prevent some of the ills of old age. Although a certain amount of overlap with adjacent age-groups is inevitable, as in the case of childhood or old age, the medical problems of middle age seem distinctive and important enough for a specialty.

In keeping with the derivation of pædiatrics and geriatrics, I suggest the term mesiatrics (from the Greek *mesos*, middle, or *messilix*, middle-aged).

King Edward Memorial Hospital,
Bombay, India. RUSTOM JAL VAKIL.

HEALTH FROM THE HEALTH SERVICE

SIR,—The John Tate lecture delivered by Dr. Horace Joules (*Lancet*, Dec. 8) contains much that is good but most of this has been commonplace in the national dailies. It is a pity that the omniscient omnicompetence is not tempered by a trace of judgment. How dare he produce such a paragraph as that headed "Tonsils and Adenoids," and end it with the words "rational assay"? Of course, there are tonsil and adenoid merchants on surgical corridors as there are cortisone wholesalers in medical cloisters. Dr. Joules can assert that there are far too many tonsil operations carried out by far too many otorhinolaryngologists or their house-surgeons, but has he made an equally unimpassioned study of unnecessary spinal punctures by recently qualified men whose medical chiefs may never have seen the cases at all? This kind of gossip is enjoyable enough when flung across the table late at night. If, however, it is what we must expect from the calm cogitations of scientifically trained graduates, then there is much to be said for a Fleet Street School of Medicine.

Newcastle upon Tyne. F. MCGUCKIN.

SIR,—Dr. Joules deals with some of the many administrative problems confronting the Ministry of Health in the prevention and treatment of disease. It is clear that he is profoundly dissatisfied with the state of affairs in every subject he has chosen to discuss, and would like to replace some of the policies adopted by the Minister by others more in line with his own opinions.

In the paragraph on tonsils and adenoids, Dr. Joules assumes that the otorhinolaryngologist engages in only the removal of tonsils and adenoids. This is not the case, and the repeated critical investigations into this question must have escaped Dr. Joules's notice. Moreover, I can assure him that, of late, a great deal of important work has been done by the specialty in audiology, in the treatment of laryngeal diseases, in microsurgery of the ear, and in other subjects, and that in the sections of laryngology and otology at the Royal Society of Medicine he would find a lot of keen "scientifically trained graduates" talking intelligently on many subjects other than tonsillectomy.

Dr. Joules looks west to the U.S.A. My visits to that country leave me with the impression that the number of tonsillectomies there is not inconsiderable. He looks east to the U.S.S.R. and China, where preventive medicine has priority. Perhaps they do not remove tonsils in those countries; perhaps this is one of the preventions; but it would be a pity to introduce that here because many tonsillectomies are thoroughly necessary.

London, W.1. A. M. ZAMORA.

DOCTORS' REMUNERATION

SIR,—We, the undersigned general practitioners, wish to protest strongly against the casual and dilatory fashion in which the Government has dealt with our pay claim.

We feel that the negotiating committee must demand a greater sense of urgency from the Minister of Health in his future dealings with the profession, many members of which are now in great need of financial help.

Apart from their plight it is clear that as the country's economic position deteriorates the difficulties of negotiation are increasing.

An unjustified feeling of optimism seems to have prevailed too long among our leaders, for after almost six months of stonewalling by the Government no steps have apparently been taken to organise the profession for action in the event of outright rejection of our claim.

We would urge that a plebiscite should be held as soon as possible to ascertain the amount of support among doctors for partial or complete withdrawal of our services should the need arise, and for the formation of a defence organisation which could legally initiate such action.

If the Government should fail to honour its contractual obligations the profession would then be in a position to immediately bring the strongest possible pressure to bear on it to secure not only our present reasonable demands but a new agreement based on the Spens report to ensure our future standard of remuneration.

F. W. ATKINSON
J. S. BROWN
S. E. BROWNE
D. CALWELL
E. CALWELL
R. CALWELL
J. CRILLEY
E. DARLING
T. GARDINER
A. KIRKPATRICK
J. D. MAHONY
J. E. MOSS
J. G. MCAVINEY.

Belfast.

ATHEROSCLEROSIS AND TRACE METALS

SIR,—The lengthy discussions in your journal on the relation of fat metabolism to atherosclerosis have produced valuable views which may eventually be translated into practice. May I comment particularly on that part of Dr. Schroeder's very interesting letter [1] which deals with the hypothesis that trace metals play a part in abnormal cholesterol and fatty-acid metabolism? To the abnormal trace elements which he mentions as being incorporated in the body tissues during life, and which may interfere with pyridoxine metabolism, I would dare to add another—mercury. Although this metal is stored as amalgam in tooth fillings, the question arises whether this amalgam, in the course of decades, does not disintegrate in such a way that minute quantities of mercury are set free. We know that in high concentrations mercury is, like some other heavy metals, capable of damaging the vascular system and raising blood-pressure (acrodynia in young children); but its rôle as trace metal in relation to the above-mentioned problem has still to be investigated. If it were found guilty, one more therapeutic procedure would be added to those suggested by Schroeder—namely, the removal of metal fillings from the teeth.

Tel-Aviv, Israel. A. MELAMED.

DIRECTORY OF MEDICAL LIBRARIES

Mr. G. J. Hipkins, hon. secretary of the Medical Section of the Library Association (13, Hill Street, London, W.1), writes:

Early in the New Year we hope to publish a Directory of Medical Libraries in the British Isles. We have sent a questionnaire to all the libraries that we know of: but their number has increased rapidly, and we may have overlooked some of the newest ones. I should be glad to hear from the librarian of any medical library that has not received a questionnaire.

1. Schroeder, H. A. *Lancet*, 1956, i, 1017.

TOWARDS TELEVISION GASTROSCOPY

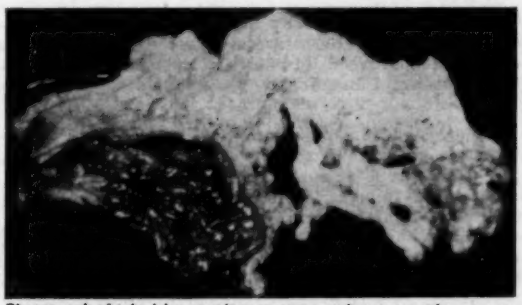
SIR,—In gastric cancer early diagnosis is still the prime need. The value of gastroscopy for routine diagnosis, without the awkwardness of the present rigid or semirigid optical instruments, and adapted to the detection of small and localised motility changes in the stomach wall, led us in 1952 to consider the possibility of a television gastroscope: a short television sonde consisting of television camera-tube, lens, and light source, of diameter not exceeding 15 mm., connected with the television monitor equipment by a cable about 6 mm. in diameter.

Colour-television gastroscopy could be achieved with three light sources (one red, one green, and one blue) switched on in rapid succession one at a time, the three "colour-separation images" being combined in a colour-television picture tube. Except for the three lamps in the television sonde, instead of one, the additional equipment required for colour would be external to the patient.

Television tests carried out by us in 1952 on formalin-preserved stomach specimens were most encouraging, but the absence at that time of camera tubes of even approximately the necessary small size forced us to suspend our work. A most important development, a "miniature vidicon" only 9 cm. long and 1·35 cm. in diameter, was announced in the autumn of 1955 by Prof. W. Heimann of Wiesbaden, Germany.

The miniature vidicon is still somewhat too long and moreover employs electromagnetic deflection, requiring deflection coils about 3 cm. in diameter. With one further stage of miniaturisation, and the use of electrostatic deflection, a camera tube small enough for a television gastroscope would be achieved.

With a suitable camera tube in sight, we returned to our television-gastroscope project and decided to examine in detail the ability of a vidicon camera system to transmit useful diagnostic information. Colour transparencies made some minutes after total gastrectomy of cancerous stomachs were placed at our disposal by Dr. E. Lewin, of Sahlgrenska Hospital, Gothenburg. These were projected (July, 1956) on the face of a standard vidicon



Photograph of television monitor screen on televising a colour transparency of a cancerous stomach.

system (625 lines). A typical photograph (see figure) of the television monitor screen clearly shows the contrast between the dark, mucus-covered, and deeply convoluted normal mucous membrane and the paler and flatter diseased regions. A real television gastroscope would, in addition to colour, convey much more information than this single still photograph, which reproduces neither the large contrast range available in a television system on manipulating the contrast control, nor, above all, the dynamic properties of the stomach wall under palpation which are of decisive importance in investigating motility.

Division of Teletechnique, Chalmers University of Technology, Gothenburg, Sweden, and King Gustaf V Jubilee Clinic, University of Gothenburg, Sweden.
HENRY WALLMAN
BENGT ROSENGREN.

CLINICOSIS

SIR,—At what seems to be the end of this fascinating and at first alarming correspondence (the police guard round the Cobbleigh home has been dismissed now, and the electric fence dismantled), I confess that, though I now know much more about the subject, I am still unrepentant.

No-one has really attempted to defend the ethical position of the clinics; and, as the objection to them on ethical grounds was plainly stated by others besides myself, I take this to indicate capitulation. The idea that ethics are satisfied by reference of *sick* children to the family doctor will not do. In infant clinics it's feeding problems, napkin rashes, and minor infections all the time, and I do not see that a line can be drawn between clinic diseases and family-doctor diseases. A line of sorts can be drawn between prevention and cure, but this line certainly does not seem to divide clinics from family-doctor surgeries, except perhaps in Dr. Kershaw's area (Nov. 24). The detection of disease early is *not* prevention, and thereby hangs the misunderstanding. Let's face it, Clinics Are Unethical.

The letters are, perhaps, insufficient to amount to a public-opinion poll; but, bearing in mind that on the whole clinic doctors have more time for reading your journal, and writing letters to it, than family doctors, let me briefly formulate a statistic. Of 26 contributors, 17 state or clearly imply that the family doctor is *ideally* the man that should do the job; about 4 say or imply that he is not; while the remainder are off this point. Even Uncle Tom said that family doctors could run clinics as well as anyone else. The pro-family-doctor group vary from those who want to scrap all clinics tomorrow to those who fear that no real change can take place in the foreseeable future. I see no reason for such pessimism: surely, once we agree that the present state of things is short of the ideal (i.e., that it is second best), we must do something about it. Our health service is meant to be a model to the world; let us make it so.

It was a most pleasant surprise to find that so many family doctors are already running their own clinics—in the more enlightened areas with the full blessing of the medical officer of health and help from the health visitors. But doctors who have tried elsewhere, alas. . . .

I suggest a controlled trial in a few suitably representative areas where doctors are willing and adequate, and where the local authorities are coöperative. As Dr. Jackson said in his excellent letter of Nov. 17, the College of General Practitioners would be the obvious sponsor, or perhaps the British Medical Association. If the trial met with the success it deserves, the change-over would become nation-wide as soon as local circumstances permitted. As with so many problems of family doctoring, group practice would make the whole thing much easier. I would suggest, too, that, pending a definite change of policy, local authorities should think several times before spending money on *new* clinics.

I must not try to cover all the many points raised, but I must comment on Dr. Chalke's important letter last week. As it happens, two of my own children went through his clinics: there are a number of reasons why mothers like them, but they are not necessarily of universal application. "Expert advice," "a check on progress," and "relief of anxiety" should not be beyond family doctors—and I suspect that quite a lot of Dr. Chalke's clinics are in fact run by general practitioners. What the patient wants is not always for the best, and perhaps I may quote a passage from the *Medical Officer* of Dec. 7:

> "They [the clinics] are, of course, well liked by their patrons, who find in them the occasion for an outing and communal assembly with edifying advice from the "nurse," and perhaps from the doctor too, the distribution of welfare foods as a kind of manna, the chance of a gossip and very likely a cup of tea. And very nice too, but is it public health?"

I should like, also, to thank Dr. Lindsey Batten (Nov. 26) for emphasising so well the wider philosophical aspect. To me, as to him, the issue is very much one of "family doctor" care as we wish to think it exists here versus "clinic" care as it exists, I believe, in the U.S.S.R. I carefully chose the title "clinicosis" to symbolise the morbid features of what is to me a spreading lesion of doubtful ætiology and as yet no known cure.

And I still say that Babies are too Fat.

Wishing you, Sir, and your Staff, and all Clinicosis Contributors (especially Uncle Tom), a Very Happy Christmas, and an atheroma-free New Year.

Widdicombe-in-the-Moor. RICHARD COBBLEIGH.

INTRAGASTRIC INFUSION

SIR,—Every pædiatrician knows the difficulties of finding suitable veins for intravenous infusions in small, dystrophic, or obese infants, and the disadvantages of the subcutaneous and intramedullary routes of infusion.

In our provincial infants' department we, too, have tested intragastric-drip infusion with a thin polyvinyl-chloride tube.

In eight months we have administered fluid by intragastric drip, instead of parenterally, to 15 infants with acute gastro-enteritis and to some with other disorders.

The clinical effects were encouraging. The tolerance of the gastro-intestinal tract to slowly administered fluids is considerable: to a 3-kg. infant with gastro-enteritis 1·25 litres of solution, and also dietary milk, were given in twenty-four hours without adverse effect on the stools.

We introduce the tube intranasally. In gastro-enteritis the fluid consists of salt (physiological-saline, Ringer's, or Darrow's solution) and 5% glucose solution, usually in equal parts, with added 'Homoseran' or 'Aminosol.' In several cases we have also administered plasma intravenously. The amount administered by intragastric drip is the same as with infusions by other routes.

In our limited experience this method has proved very satisfactory.

State Hospital,
Děčín,
Czechoslovakia. S. J. HAVELKA.

AGRANULOCYTOSIS DURING TREATMENT WITH PACATAL

SIR,—The paper by Dr. Gore and Dr. Biezanek (Nov. 24) shows anew that dangerous side-effects of a drug usually do not become evident before the preparation has been available for several months or years. After 'Pacatal' was made available in Germany in 1954, Dr. Lennartz and I [1] observed a case—probably the first published—of pacatal agranulocytosis, though blood dyscrasias during administration of other phenothiazine derivatives ('Diparcol,' chlorpromazine, &c.) had been reported earlier. A non-fatal case after simultaneous treatment with pacatal and chlorpromazine (about 8 g. of each in seven weeks) was described by Hiob and Hippius.[2]

Our patient was a man, aged 35, who had received 13 g. of pacatal as a sedative because of supposed schizophrenia; serial blood-counts were not done. After admission to the Hamburg University Hospital the patient came under our care and was found to have cerebral syphilis (dementia

1. Wenderoth, H., Lennartz, H. *Med. Klin.* 1955, **50**, 818.
2. Hiob, J., Hippius, H. *Ärztl. Wschr.* 1955, **10**, 924.

paralytica) and agranulocytosis (1000 leucocytes per c.mm., no polymorphs) with pyrexia, necrotising tonsillitis, and aplastic bone-marrow. Despite blood-transfusions and therapy with penicillin, streptomycin, and corticotrophin the patient died four days later. Necropsy confirmed the diagnosis. In our opinion, the chronic syphilitic infection could be considered as an agranulocytosis-promoting condition.

Department of Medicine,
Städtische Krankenanstalten,
Dortmund, Germany. H. WENDEROTH.

Parliament

Hospital Building Programme

Mr. R. H. TURTON, the Minister of Health, on Dec. 12 announced that the Government proposed to spend £20 million on capital developments in the hospital service in England and Wales in 1958–59, compared with £13 million this financial year and £18 million proposed for next year.

Hospital boards had already been informed of their allocations within this total for the modernisation of mental hospitals, the replacement of obsolete plant, and ordinary capital expenditure. In addition, the programme of major building projects already announced, which included the first phases of a number of large schemes, would be extended. He hoped to authorise a further phase of the new Greaves Hall Mental Deficiency Hospital to be begun next year, and further phases of other projects in 1958–59, including Balderton Mental Deficiency Hospital, and the West Wales General Hospital, Glangwili.

In that year also some big schemes already announced but not ready to begin earlier were expected to make a start. He was also inviting the boards concerned to complete the planning of a number of additional major projects on the assumption that they could be started in 1958–59. These included:

The first phase of a new hospital at Slough; a new dental hospital at Birmingham; the reconstruction of Hillingdon Hospital; extensions to the St. Helen Hospital, Barnsley, the Orsett branch of the Tilbury and Riverside General Hospital, Poole General Hospital, Bridgend General Hospital, and Lea Castle Mental Deficiency Hospital, near Kidderminster; additional hospital facilities at Kettering, extensions to the Luton and Dunstable Hospital, and new outpatient departments at the Royal Northern Hospital, Oldchurch Hospital, Romford, and Selly Oak Hospital, Birmingham.

These major projects were additional to the building which would be undertaken by boards from their own share of the funds available for capital expenditure. They were a further stage in our plans to meet the need for major developments in the hospital service, and with the projects already announced constituted a programme of substantial improvements in each hospital region in England and Wales.

Mr. JAMES STUART, giving the figures for Scotland, said that the total provision for capital expenditure on hospital building would be increased from its present level of £2·2 million this year to £2·5 million in 1957–58, and to £2·7 million in 1958–59. From these sums approximately £1·3 million would be available to regional hospital boards for their ordinary building programmes. Allotments of £350,000 and £300,000 were being made in the year 1957–58, and 1958–59 respectively for plant renewal. The balance of the money would be allocated to further major building schemes at present under construction and to begin six new major schemes.

At present work was being carried out on the following eight schemes, at a total estimated cost of £3·25 million:

Radiotherapy institute at the Western General Hospital, Edinburgh; neurosurgical unit at the Western General Hospital, Edinburgh; reconstruction and modernisation of Westgreen Mental Hospital, Dundee (stage I); extension of Victoria Hospital, Kirkcaldy; new maternity hospital at Bellshill, Lanarkshire; extension of Ladysbridge Hospital for Mental Defectives at Banff (stage I); extension of Baldovan Institution for Mental Defectives, Dundee (stage I); extension of the Royal Scottish National Institution (for mental defectives), Larbert.

In 1957–58 it was proposed to start the following three projects with a total estimated cost of £1·01 million:

Extension of the Royal Edinburgh Mental Hospital; new hospital in Shetland; reconstruction of the Glasgow Victoria Infirmary.

In 1958–59 it was proposed to start the following three further schemes with a total estimated cost of £0·92 million:

Radiotherapy institute in Glasgow; reconstruction and modernisation of Westgreen Mental Hospital, Dundee (stage II); new maternity hospital in Glasgow.

QUESTION TIME

Hospital Capital Schemes

Mr. KENNETH ROBINSON asked the Chancellor of the Exchequer if he had now reached a decision on the recommendation of the Guillebaud Committee that hospital capital schemes of less than £100,000 should no longer require individual approval by the Treasury?—Mr. HENRY BROOKE replied: Yes, Sir. Hospital capital schemes costing less than £60,000 no longer require individual approval by the Treasury. Mr. ROBINSON: Is the Minister aware that the regional hospital boards will tender to the Chancellor their half-hearted thanks for his having gone half-way to meeting this recommendation? Can he tell the House why it has not been possible to go the whole way to meeting this very modest recommendation in the report?—Mr. BROOKE: I had hoped that the hon. Member, as a member of a regional hospital board, would have been wholehearted on this occasion. The fact is that £60,000 is double the previous limit of £30,000, and it is also the limit that already applies to most other civil and defence building paid for by the Exchequer.

Medicine and the Law

A Death at Home

A WOMAN, aged 73, whose tibia and fibula were fractured in a road accident, was examined by a casualty officer, after which a nurse treated the cuts on her head and she was told to return next day for further treatment.[1] She died next morning, and at necropsy the pathologist found congestion of the brain and of both lungs, one of which was collapsed. Eight ribs were broken and the spleen was ruptured. The pathologist said that the collapsed lung and ruptured spleen could have been treated, if they had been recognised. The casualty officer said that he was trying to cope with six other patients at the same time, and that to his mind there had been no indication that the woman should have been admitted. The house-surgeon had agreed with him. The coroner, instructing the jury, reminded them that the job of the casualty officer required great clinical experience, which might here be lacking.

Appointments

BUTLER, N. H., M.D. Lond., M.R.C.P., D.C.H.: consultant paediatrician, Oxford and South West Metropolitan Regional Hospital Boards.

DONNELLY, JAMES, M.B. Glasg.: senior casualty officer, Royal Infirmary, Doncaster.

HARRIS, WALDRON, M.R.C.S., D.O.M.S.: assistant ophthalmologist, Leicester Royal Infirmary.

HUTCHINSON, W. J., M.B. Belf., D.P.H.: M.O.H., Hucknall.

ORR, JOYCE, M. B., M.B. Edin.: assistant M.O., Hertfordshire.

ROBERTSON, J. S., M.B. Leeds, D.P.H.: assistant M.O. and M.O.H., Barton-on-Humber and Brigg.

WHITEHEAD, T. B., M.B. Manc., D.P.H.: assistant M.O., Surrey.

WOODGER, B. A., M.B. Glasg., A.R.I.C., DIP. PATH.: consultant pathologist based at Hairmyres Hospital, East Kilbride.

1. *Kentish Mercury*, Nov. 30, 1956.

Obituary

EDITH MARY BROWN

D.B.E., M.D. Brux., M.R.C.O.G.

Dame Edith Brown, who founded the Christian Medical College at Ludhiana over sixty years ago, died on Dec. 6 at the age of 92.

She was educated at Croydon High School and Girton College, Cambridge, and was one of the first women to take honours in the natural sciences tripos. She continued her medical studies at the Royal Free Hospital, qualifying in 1891. In the same year she was sent by the Zenana (women's) branch of the Baptist Missionary Society to Ludhiana, an important town in the Punjab province of India. There she quickly came to grips with the difficulties which caste, creed, and prejudice add to medical work in India, and in particular with the problems of women in purdah who were prevented by religious laws from consulting men doctors. Within two years she had carried with her both government and mission authorities, and in 1894 the first women's medical college in South-East Asia was started on a non-denominational basis in a rented schoolhouse, with four medical students and a promise of £50 yearly for four years.

She quickly won recognition as a clinician, an administrator, and a person, and, with a large practice among Maharajahs and increasing support from home, she was able to build slowly and steadily: ward blocks at first, and later theatres, dispensary, and private patients' quarters; and, finally, with a greatly increased staff, both Western and Eastern, a complete preclinical department and large hostels for students and nurses. The result was achieved by mutual aid; North Indian missions of all Nonconformist sects supported their girls through the training and then employed them in their own organisation. Ludhiana graduates did great and pioneering work through the whole of North India, and indeed throughout the world. For her achievements Dr. Brown received the silver Kaisar-i-Hind medal in 1911, and the gold medal in 1922. She was appointed D.B.E. in 1931.

With timely financial help, the college survived the difficulties of the late war, and in 1942 Dame Edith resigned from the post of principal which she had held for almost 50 years. But she remained an active force in the hospital. In the great partition troubles of 1947, some of the most savage communal massacres took place at Ludhiana. The hospital was opened to men as well as to women patients, and Dame Edith, at 83, was a tower of strength in a disintegrating world. Her prestige and personality probably saved staff and patients from disaster. Through protracted street fighting she would leave the college as usual to walk the couple of hundred yards down to the hospital, bearing as always sun-helmet and umbrella. At her appearance all shooting ceased, and a hush fell until she reached the safety of the hospital door. Later a wild mob demanded that all Muslim women be handed over or everyone would be attacked. Speaking to them gently, as to naughty children, she rebuked them and sent them shamefacedly away. In 1948 she finally retired to a houseboat in Kashmir.

After the fighting had ended the hospital continued to take men and women patients, and latterly it has taken men students. This last change has been made possible by the cultural progress which Edith Brown foretold in 1894 would take three generations. At the same time the college qualification became a medical degree. The stone of a new 400-bed hospital was laid by Rajkumari Amrit Kaur, the health minister, in 1954 on the 60th birthday of the college and the 90th birthday of Edith Brown. In retirement in Srinagar, she remained interested to the last in seeing folk up from Ludhiana, in the Christian work around her, and in the study of dialects.

A friend writes:

Edith Brown founded her hospital before lice were known to carry typhus, or the mosquito malaria, before immunisation and emetine, and before the intravenous treatment of cholera. Malaria and the dysenteries were a constant threat to the white man. From the medical security of today we must look back in wonder at the toughness of these pioneers. In Edith Brown, with this toughness went extraordinary self-discipline. She habitually arose at 4 A.M. and spent the time before breakfast in study or prayer, or writing the long journals which she used to send home. Her Christianity gave the Ludhiana work and life a profound quality. Doctors and nurses, of whatever creed, carried away with them a sense of concern for the individual patient, and an attitude of unselfishness, thoroughness, and responsibility. The continuing work of the college is her memorial, but even to the most humble her name is evergreen. To ask at Ludhiana station for a tonga to "Christian Medical College," or "Mission Hospital," or even "Medical Ischool" is to be met by blank stares; but mention the name "Brown" and dark eyes light up: "Ah, Miss Brown-ka hai!" and you are off like a flash.

GEORGE WILKINSON

M.B. Camb., F.R.C.S.

Mr. George Wilkinson, consulting aural surgeon to Sheffield Royal Hospital, died on Dec. 5 at the age of 89.

He was born at Hull, where his father and grandfather were doctors, and his grandson is now a doctor. From Emmanuel College, Cambridge, he went to St. Mary's Hospital, and he graduated M.B. in 1891, taking the F.R.C.S. three years later. He was appointed house-surgeon to the Sheffield Royal Hospital in 1892, and became honorary surgeon in 1898. Soon after the turn of the century he decided to do only ear, nose, and throat surgery—a courageous step in those days. Soon afterwards the first aural department in the north of England was created for him at the Sheffield Royal Hospital, and in 1909 he was given the title of honorary aural surgeon. At that time this work included thyroidectomies, plastic surgery, and operations for cleft palate and hare-lip, besides what is now recognised as routine E.N.T. work. In 1911, soon after the school health services were started, he persuaded the educational authorities in Sheffield to set up an E.N.T. clinic, which he served as an honorary officer. During the 1914–18 war he acted as general surgeon to the 3rd Northern General Hospital in Sheffield. When he retired from the Sheffield Royal Hospital at the age of 60 in 1927, as a tribute to his work the hospital named the E.N.T. ward after him. Later he was appointed E.N.T. surgeon to the Chesterfield Royal Hospital, and he held this post till 1938.

One of his chief interests was the theory of hearing, and in 1924 he published, with Dr. A. A. Gray, a book on the *Mechanism of the Cochlea*. The models of the cochlea which he made to illustrate the theory of resonance were marvels of skill, patience, and ingenuity. The study of history was his main literary recreation. He lectured on medical history at the University of Sheffield, and he published in the magazine of the Sheffield medical school a brief historical survey of the treatment of wounded in war. Perhaps his most remarkable achievement was his paper entitled How we Hear, published in the *Journal of Laryngology* in 1953, which was dictated when he was already blind and deaf.

H. L. W. writes:

Essentially a kindly man, George Wilkinson's very brilliance was apt to make him intolerant of inefficiency in others, but if he had occasion to criticise, almost at once his kindly smile would show that there was no personal resentment, but only an intense keenness for the work on hand. When his sight began to fail he bravely taught himself braille so as not to lose touch with his intellectual pursuits. He continued to attend church regularly, even when blindness made this a perilous proceeding in modern traffic.

Mr. Wilkinson, who was a widower, leaves three daughters.

Notes and News

BOND OF LEICESTER

FROM A CORRESPONDENT

THE second Bond memorial lecture was to have been given at the end of last month by the late Sir Lionel Whitby. This lecture to the Leicester Medical Society was arranged in commemoration of the centenary of the birth of one of Leicester's most famous medical sons.

Charles John Bond drew his basic biological training from his country upbringing on his father's farm at Bittesby and from his school at Repton. As a medical student at University College Hospital he became an intimate friend of Victor Horsley. It was a stimulating, complementary, friendship lasting till Horsley's death in 1916. Both men led lives of strict self-discipline; both were convinced abstainers from alcohol. A fundamental integrity and desire for truth developed their spiritual responsibility as surgeons and citizens. Horsley battled, but Bond used diplomacy and remained serene.

Bond's work was in Leicester and for Leicester, but it extended far beyond his term of appointment as surgeon to the Leicester Royal Infirmary from 1886 to 1913. His interests were so wide that they might have prevented his attaining a high standard in each subject, but his early discipline of immediately writing up his observations and deductions (he would often jot down notes in bed at night or in the early morning), and his habit of carefully preparing and subsequently publishing his addresses, not only won him international recognition during his life but leaves a record of great interest. In 1930 Will Mayo wrote to him "I had occasion recently to go back over some of your work of years ago, articles on reverse peristalsis, cellular pathology and other subjects, and found that they are just as good to-day as when they were written." After another twenty-six years this is still true; and it is also true of his writing on subjects outside surgery. With Bond's superior intellect went a human understanding and compassion which extended beyond the individual to the community and to the world. Considered in chronological order, the subject-matter of his written work forms a logical sequence: anatomy, embryology, surgery, gynæcology, orthopædics, anæsthesia, then infection, and antiseptics led to his study of leucocytes and their movements and thus to his original work in hæmatology which was made urgent by the 1914–18 war. During the war, he was appointed consulting surgeon to Northern Command, which post he shared with Lord Moynihan. An original member of the Medical Research Committee (now Council) he represented it on the Inter-Allied Commission on Treatment of War Wounds held in Paris in 1916–18, and in the five years of war he published no fewer than fourteen papers relevant to these matters. At the time when he had no laboratory facilities in Leicester, he would spend his weekends working in Horsley's laboratory; for it was one of the articles of his surgical creed that a surgeon must be a pathologist.

From very early days, Bond studied the new science of genetics and eugenics. Experiments on plants and birds were undertaken in his own garden and were continued until his death in 1939. Scientific and philosophical writing along these lines seems to link up the whole of his life's work in an inherent loyalty and patriotism which included consideration of the mental health of the community and sociology in its widest sense. Thus in 1927 he wrote:

> "Courtesy and chivalry are twin brothers. Rudeness in speech or conduct in public as in private life, arises from uncontrolled impulse and is a form of barbarism. It springs from the same mental attitude as that which begets strife in industry and war between nations. Rudeness is the outcome of lack of appreciation of the opinions, the feelings and outlook of fellow citizens and is a manifestation of intellectual selfishness. The great problem of our time is not only how to make the world a better place to live in, but, how to make better human beings and citizens able to live nobly and happily in that better world."

This is, perhaps, more poignant today than when it was written.

J. B. W.

KING EDWARD'S HOSPITAL FUND

PRESIDING at a meeting of the general council of King Edward's Hospital Fund for London, the Duke of Gloucester said that the help the hospitals were getting from the many leagues of friends was beginning to relieve the Fund of some of the urgent claims of recent years, and to allow a more progressive policy. The Fund was making a special effort to help the mental and mental-deficiency hospitals serving London. The largest project, a pioneer occupation centre at Goodmayes Mental Hospital, was due to be completed next summer. Extensive alterations and improvements to hospital kitchens were being carried out and other catering facilities provided as a result of the grants made and also through the expert help given by the Fund's catering advisory service. Altogether £365,000 had been put into efforts to improve the catering in hospitals. The national training scheme for young hospital administrators had been launched and the first reports were satisfactory.

The Duke announced that Lord McCorquodale was succeeding Sir Ernest Pooley as chairman of the management committee. Sir Ernest had been connected with the Fund since 1929, and the Duke spoke of his unremitting devotion to the interests of the Fund. Lord McCorquodale had been the chairman of the staff college for hospital administrators since it started five years ago. Sir Wilson Jameson will succeed him.

Sir Archibald Gray, presenting the report of the distribution committee, said that the Fund's eleventh home for the aged sick was being designed and built especially for this purpose. Efforts had been made to improve the gardens surrounding hospitals; the Fund had enlisted the coöperation of the Royal Horticultural Society, and the work had been supported by grants of over £6000 in the past two years.

Sir Henry Tidy, chairman of the convalescent-homes committee, said that in the past two years 400 beds in children's convalescent homes in the Metropolitan area had been closed as redundant. This was due to the power of antibiotics and to the healthiness of the present generation of children. He referred to the working party set up by the Ministry of Health to examine the extent to which the provision of convalescent homes in the National Health Service was meeting the demands placed upon it. Nowadays patients were discharged from hospital sooner, and came to convalescent homes at an earlier stage. More was now required from convalescent homes than the provision of beds. The Fund was represented on the working party.

WHAT HAPPENS TO OUR NURSES

FROM time to time it has been pointed out that the answer to the shortage of nurses is not more recruits but fewer deserters. Wastage among students is regrettable, but among qualified nurses who have prepared themselves for their profession by years of hard work it is especially disturbing. In June, 1955, in an effort to discover the extent of this loss and the reasons for it, the Dan Mason Nursing Research Committee sent a questionary to 1200 nurses who had qualified in 1953. 866 women and 121 men responded and an analysis of their replies has now been published.[1] Of the women rather less than half (44%) were still nursing in hospitals. A further 16% were either practising midwifery or doing their midwifery training. 11% were nursing outside hospital in public-health or private services or in the Armed Forces. 4% were nursing overseas. 24% had left nursing—20% on marriage and only 2% for other occupations.

This was the position in this group two and a half years after qualification, and the replies suggested that during the next few years there would be further losses. 20% had already given up nursing because of marriage—but a third of all the women were in fact already married and a further 10% were engaged to be married. Growing domestic responsibilities would seem to be likely to draw more from nursing. The other reason why nurses are lost to our hospitals, though not to the nursing profession as a whole, is their wish to nurse overseas: the number in this group already nursing overseas (4%) is not unduly large, especially when it is remembered how many girls come from abroad to train as nurses in this country. But a further 13% were planning to go abroad, making a probable total loss of 17%. Those who did not reply to the questionary are not included in the survey, but it was firmly ascertained that 5% of these had also gone abroad. This emigrant group is therefore potentially larger than the modest 4% given in the survey.

The figures for the men—a much smaller group—differ considerably from those for the women. 82% are still working

1. Work of Recently Qualified Nurses. 1956. Pp. 63. 2s. 6d. Copies may be had from the Dan Mason Nursing Research Committee of the National Florence Nightingale Memorial Committee, 7, Grosvenor Crescent, London, W.1.

in hospitals (and of these 46% in mental hospitals), 7% are in other branches of nursing, 3% are nursing overseas, and 8% have left nursing for other occupations.

Most of the nurses, men and women, who were working in hospitals no longer live in; but, apart from this change, the traditional pattern of hospital life seems to be altering slowly. Many of the same grounds for dissatisfaction as were given in this survey appeared in the report of the Lancet Commission on Nursing in 1932—long and awkward hours of duty, insufficient notice of off-duty time, too much cleaning, lectures after night duty, outdated discipline, and petty restrictions.

On the whole the men seemed to be more dissatisfied with the salaries offered than the women. 63% of the men, as against 26% of the women, gave inadequate salaries as a reason for dissatisfaction. This is probably because men do not leave the profession on marriage and have to meet their family responsibilities from their salary, and because their opportunities for promotion are disappointing. Some of the women who had left nursing on marriage did so reluctantly, but they had been unable to find part-time work with convenient hours near their home. Even nurses who were dissatisfied with some of the conditions found nursing satisfying work, and 86% of the women and 51% of the men recommended it as a profession without reservation. The lesson of their replies seems to be that if we are to make the most of our nurses we should ensure that the profession offers better prospects to men who are anxious to make nursing their career and better part-time conditions to women who are anxious to continue or to return to this work after marriage.

IN LINCOLN'S INN FIELDS

THIS year the Royal College of Surgeons returned to London for its annual general meeting; and once again there was an interesting programme of films and lectures, and an excellent exhibition of general medical interest organised by Mr. Harold Edwards and Mr. Lawrence Abel. Films were shown by Mr. Patrick Clarkson (on injuries of the hand), Dr. J. J. Stevenson (on cine-radiography), and Prof. R. Milnes Walker (on portal hypertension). Prof. I. S. Ravdin gave a Moynihan lecture entitled the Complexity of Liver Disease—Surgical Steps towards Solution.

The annual report was presented by Sir Harry Platt, the president, who described the changes which the college wishes to make under the supplemental charter which is being applied for. Sir Archibald McIndoe, the treasurer, emphasised that, if the present building programme is to be paid for, a further £700,000 must be raised. Prof. Digby Chamberlain described the many and popular activities of the college in postgraduate education. The Nuffield chair of dental science has been founded, and the department of anæsthesia will open on Jan. 1. Mr. E. W. Riches, chairman of the building committee, described the Nuffield College, which is nearing completion. It will begin to function in the New Year, and will be officially opened by Lord Freyberg on April 5.

MUTANT GENES

THE Medical Research Council's committee on the preservation of pathological mutants of the mouse found that the variety of mutant strains was not fully appreciated by research-workers. Accordingly Prof. H. Grüneberg, F.R.S., a member of the committee, has compiled a catalogue of the mutant genes,[1] most of which have been described only in journals specialising in genetics.

INFLUENZA

REPORTS from Japan state that a rapidly spreading epidemic of influenza has involved 13,000 people.[2] It is said that more than 130 people died on Dec. 13. A number of schools in the Tokyo area and elsewhere have been closed. A possibility is that the organism responsible is one of the strains of influenza-A virus which were first isolated in Holland earlier this year and which seem to have spread very rapidly.[3] At an inquest in this country [4] a pathologist described extreme congestion of the lungs in a woman found dead in a car that had crashed while she was driving it. He could find no injuries that could account for her death, which he attributed to a virus pneumonia and myocarditis. He thought the illness had probably begun just before the accident. As far as we know, the possibility that this was an influenzal pneumonia has not been excluded.

1. An Annotated Catalogue of the Mutant Genes of the House Mouse. By H. GRÜNEBERG, M.D., D.SC., F.R.S. Medical Research Council memorandum no. 33. H.M. Stationery Office. 1956. Pp. 28. 2s. 6d.
2. *Times*, Dec. 14, 1956.
3. Isaacs, A. *Lancet*, Nov. 10, 1956, p. 960.
4. *Times*, Dec. 12, 1956.

TALKING OF CHILDREN

ADVICE on bringing up children is not always wisely given—nor, it must be added, is it always willingly accepted. All too often the adviser conveys that, if they had been his children, Willie would not be wetting his bed and young Jane would not be having those tantrums. No fear of such arrogance need keep parents from reading Dr. Simon Yudkin's *All our Children*.[1] As a pædiatrician Dr. Yudkin writes with clinical objectivity; but his is no Olympic view by which the bubbling cauldron of family life is surveyed with easy detachment: here, we feel, is someone who has been in the middle of it. Dr. Yudkin sets out his guide to child care simply but never patronisingly; and what he says could be read with profit by any parent.

RESIDENTIAL CHARGES FOR HOSPITAL DOCTORS

THE Medical Whitley Council (M.D.B. circular no. 34) have agreed to revision of the present system by which doctors living in at hospitals are charged for board and lodging according to the value of the service provided. Instead doctors are to be charged according to their grade. The new scale, which takes effect from Aug. 1, 1956, is as follows:

	Per annum
House-officer	£125
Senior house-officer	£150
Junior hospital medical officer	£170
Registrar	£170
Senior registrar	£200
Senior hospital medical officer	£350
Consultant	£400

The charges are for services provided over a year of employment, and no rebate is given for annual leave or for the first week of sick-leave.

University of Aberdeen

On Dec. 12 the following degrees were conferred:

M.D.—James Watt, with honours; Jessie C. Yorston, with commendation.
Ch.M.—T. L. Carr.
M.B., Ch.B.—C. C. Constantinides, A. E. Silbergh, H. G. Tough, Adam Tullett, A. J. Watt, David Wilkinson.

University of Dublin

On Dec. 11, at the school of physic, Trinity College, the following degrees were conferred:

M.D.—W. T. Bermingham, Christopher Kennedy, D. G. Walker.
M.Ch.—A. M. Wiley.
M.A.O.—E. W. Lillie.
M.B., B.Ch., B.A.O.—P. J. Callaghan, J. M. Campbell, Okikiolu Oluwaji Coker, C. G. Conway, Janet F. A. Craven, Lorna M. Davis, Hazel M. Finlay, R. M. Flewitt, J. F. Gillespie, Daphne Gilpin, J. K. Graham, Kathleen P. Halliman, W. J. Holmes, Barbara M. G. Karolyi, Kathleen R. King, Eleanor M. Laracy, G. J. McKeon, Thomas Mawdsley, P. I. Melia, A. H. Mike, P. B. Morck, Kathleen M. W. Robin, Anne H. Passmore-Rowe, D. F. Spencer, M. C. Starks, Rosemary Wall, Maurice White, Kathryn M. Wilson.

Royal College of Physicians of Ireland

On Dec. 7 the following were admitted licentiates in medicine and midwifery:

Alice N. Abdelnour, N. A. Barry, D. P. Beirne, R. G. E. Benson, Erda P. Bodden, J. C. Briggs, W. O. Brinckenhoff, Hyacinth I. C. P. Browne, B. G. Curtin, J. E. L. Daly, Mary Duffy, J. R. Duksszta, W. A. K. Dwyer, Solawole Olutayo Ejiwunmi, D. G. Elefthery, J. I. Horowitz, Michael Kelly, Alphonsus Kenny, Aleksy Kieskiewicz, Wanda Lawendel, M. N. Lynch, M. P. Moran, B. N. Murray, F. U. K. Ogeah, Bernard Redfern, N. S. Ryan, R. I. R. Shannon, J. H. Smyth, Zofia Wanda Swistak, P. D. Tanham, W. R. Watkins, Virginia M. L. Wong, Jan Wyganowski.

College of General Practitioners

Butterworth Gold Medal.—The subject for next year's essay is the science and art of prognosis in general practice. The award is open to members and associates of the college and further particulars may be had from the chairman of the awards committee of the College, 14, Black Friars Lane, London, E.C.4.

Army Appointment

Prof. A. W. Woodruff has been appointed honorary consultant in tropical diseases to the Army at Home in succession to Sir Neil Hamilton Fairley, F.R.S., who has resigned on reaching the retiring age.

1. All our Children: a book for parents. By Simon Yudkin, PH.D., M.B., M.R.C.P., D.C.H. London: Max Reinhardt. 1956. Pp. 201. 12s. 6d.

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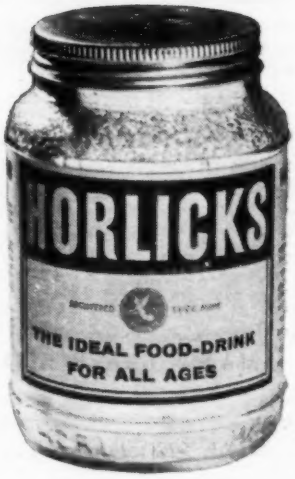

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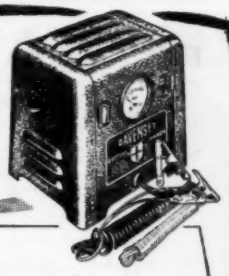

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Academic and Educational

INSTITUTE OF NEUROLOGY
(Queen-square)
UNIVERSITY OF LONDON
(BRITISH POSTGRADUATE MEDICAL FEDERATION)

A COURSE OF LECTURES on "Biochemical and Clinical Aspects of Disorders of Metabolism in Relation to the Central Nervous System" will be given in the Lecture Theatre at the National Hospital, Queen-square, London, W.C.1, on MONDAYS (Biochemical) and FRIDAYS (Clinical) at 5.30 P.M.

Monday 14th Jan.	Biochemical Aspects of Vitamin B Group Disorders	Sir RUDOLPH PETERS, M.C., F.R.S. (Institute of Animal Physiology)
Friday 18th Jan.	Clinical Aspects of Vitamin B Group Disorders	Dr. J. D. SPILLANE, M.D., F.R.C.P. (United Cardiff Hospitals)
Monday 21st Jan.	Biochemical Aspects of Enzyme Disorders in Relation to Demylination	Prof. R. H. S. THOMPSON, B.SC., D.M. (Guy's Hospital Medical School)
Friday 25th Jan.	The Demylinating Diseases	Sir CHARLES SYMONDS, K.B.E., C.B., D.M., F.R.C.P. (Institute of Neurology)
Monday 28th Jan.	Biochemical Aspects of Porphyrin Disorders	Prof. C. RIMINGTON, PH.D., D.SC. (University College Hospital Medical School)
Friday 1st Feb.	Clinical Aspects of Porphyrin Disorders	Dr. J. St. C. ELKINGTON, M.D., F.R.C.P. (Institute of Neurology)
Monday 4th Feb.	Biochemical Aspects of Disorders of Calcium and Phosphorus Metabolism	Prof. C. E. DENT, M.D., F.R.C.P. (University College Hospital Medical School)
Friday 8th Feb.	Clinical Aspects of Disorders of Calcium and Phosphorus Metabolism	Dr. P. K. ROBINSON, M.R.C.P. (Royal South Hants Hospital)
Monday 11th Feb.	Biochemical Aspects of Disorders of Copper Metabolism	Dr. J. N. CUMINGS, M.D., F.R.C.P. (Institute of Neurology)
Friday 15th Feb.	Clinical Aspects of Disorders of Copper Metabolism	Dr. R. E. KELLY, M.D., M.R.C.P. (Institute of Neurology)
Monday 18th Feb.	Biochemical Aspects of Liver Metabolism and the Central Nervous System	Dr. SHEILA SHERLOCK, M.D., F.R.C.P. (Postgraduate Medical School)
Friday 22nd Feb.	Clinical Aspects of Liver Metabolism and the Central Nervous System	Dr. MICHAEL KREMER, M.D., F.R.C.P. (Institute of Neurology)
Monday 25th Feb.	Biochemical Aspects of Anoxic and Hypoglycæmic States	Prof. H. MCILWAIN, D.SC. (Institute of Psychiatry)
Friday 1st Mar.	Clinical Aspects of Anoxic and Hypoglycæmic States	Dr. DENIS WILLIAMS, C.B.E., M.D., F.R.C.P. (Institute of Neurology)
Monday 4th Mar.	Biochemical Aspects of Pituitary Adrenal Disorders	Prof. F. T. G. PRUNTY, M.D., F.R.C.P. (St. Thomas's Hospital Medical School)
Friday 8th Mar.	Clinical Aspects of Pituitary Adrenal Disorders	Dr. J. D. N. NABARRO, M.D., M.R.C.P. (Middlesex Hospital)
Monday 11th Mar.	Biochemical Aspects of Disorders of Lipid Metabolism	Dr. J. N. CUMINGS, M.D., F.R.C.P. (Institute of Neurology)
Friday 15th Mar.	Clinical Aspects of Disorders of Lipid Metabolism	Dr. PAUL SANDIFER, F.R.C.P., D.P.M. (Institute of Neurology)
Monday 18th Mar.	Biochemical Aspects of Disorders of Muscle	Dr. BRIAN MCARDLE, M.D., M.R.C.P. (Guy's Hospital)
Friday 22nd Mar.	Clinical Aspects of Disorders of Muscle	Dr. JOHN MARSHALL, M.R.C.P., D.P.M. (Institute of Neurology)

The fee for the full course of 20 lectures will be 5 guineas, but tickets will be issued for Mondays only (Biochemical lectures) at 3 guineas for a course of 10 lectures, or for Fridays only (Clinical lectures) at 3 guineas for a course of 10 lectures, or for a single lecture 7s. 6d.

Tickets may be obtained on application to the Dean, Institute of Neurology (Queen-square), The National Hospital, Queen-square, London, W.C.1.

INSTITUTE OF NEUROLOGY
(Queen-square)
UNIVERSITY OF LONDON
(BRITISH POSTGRADUATE MEDICAL FEDERATION)

2 COURSES OF CLINICAL DEMONSTRATIONS open to Postgraduates, will be held at The National Hospital, Queen-square, on WEDNESDAYS at 4 P.M. from 9TH JANUARY to 20TH MARCH, 1957, inclusive, and on SATURDAYS at 10.30 A.M. from 12TH JANUARY to 23RD MARCH, 1957, inclusive.

The fee for attending either of these courses is 2 guineas.

Application for a ticket should be made to the Dean, Institute of Neurology (Queen-square), The National Hospital, Queen-square, W.C.1, and a remittance to cover the fee enclosed. Only postal applications will be considered.

SOCIETY OF APOTHECARIES OF LONDON

DIPLOMA IN INDUSTRIAL HEALTH

The next Examination will begin on MONDAY, 1ST JULY, 1957. The following Examination will be held in December, 1957.

For Regulations apply Registrar, Apothecaries' Hall, Black Friars-lane, London, E.C.4.

UNIVERSITY OF ABERDEEN. Applications are invited for the post of LECTURER IN OBSTETRICS AND GYNÆCOLOGY, with clinical status in the Aberdeen Teaching Hospitals. Salary £1000, rising by £100 to £1500, with placing according to qualifications and experience. F.S.S.U. and children's allowance. Proportion of removal expenses refunded.

Conditions of appointment and forms of application should be obtained from the Secretary, The University, Aberdeen, with whom applications (15 copies) should be lodged not later than 3rd January, 1957. Applicants outside the British Isles may submit 1 copy of application.

UNIVERSITY OF BRISTOL. Department of Bacteriology. Applications are invited from Medical, Science, or Veterinary Graduates, with experience in Bacteriology and/or Virology, for the post of LECTURER IN BACTERIOLOGY. The duties include undergraduate and postgraduate teaching, but facilities are provided for research. The salary will be within the range of £1000–£100–£1750 (together with superannuation and children's allowances) according to the qualifications and experience of the applicant.

Applications, with the names of 3 referees, should be made as soon as possible to the Registrar, from whom further particulars may be obtained.

UNIVERSITY COLLEGE OF THE WEST INDIES. Applications are invited for LECTURESHIP IN ANATOMY. Duties include lecturing in human anatomy and assistance in practical courses of histology to students working for medical degrees of University of London. Registrable medical qualification essential. Salary scale £1000–£100–£1300–£100–£1700 p.a. Entry point determined by qualifications and experience. Child allowance. F.S.S.U. Unfurnished accommodation at 5% basic salary, or suitable allowance in lieu. Passages up to 5 persons on appointment, normal termination and triennial study leave. Duties to be assumed by 30th March, 1957, or as soon thereafter as possible.

Detailed applications (10 copies), naming 3 referees, by 15th January, 1957, to Secretary, Senate Committee on Colleges Overseas in Special Relation, University of London, Senate House, London, W.C.1, from whom further particulars may be obtained.

MAKERERE COLLEGE. The University College of EAST AFRICA. Applications are invited for LECTURESHIP IN SURGERY. Salary scale £1446–£57–£1617–£60–£1737–£63–£1989 p.a. Child allowance £50 p.a. per child (maximum £150 p.a.). F.S.S.U. Passages for appointee and family (up to 4 adult passages) on appointment, termination, and leave (3 months every 21 months). Rent according to quarters provided, £45–£84 p.a. (including basic furniture). Duties to be assumed as soon as possible after 1st July, 1957. Appointment on secondment (minimum period 21 months) would be considered.

Detailed applications (6 copies), naming 3 referees, by 19th January, 1957, to Secretary, Inter-University Council for Higher Education Overseas, 29, Woburn-square, London, W.C.1, from whom further particulars may be obtained.

Hospital Services : Senior Appointments

WHITTINGTON HOSPITAL, London, N.19. Locum Tenens ASSISTANT ORTHOPÆDIC SURGEON (Senior Hospital Medical Officer) required from 18th February, 1957, for 3 months in the first instance.

Applications, with the names of 2 referees, to Medical Superintendent by 7th January, 1957.

BRIGHTON. SUSSEX EYE HOSPITAL. Part-time Locum CONSULTANT in Ophthalmology. Applications are invited from suitably qualified and experienced practitioners to fill a post as part-time Ophthalmologist at the above Hospital (5 sessions a week) from 7th January, 1957, for about 4–5 months.

Applications should be sent immediately to the Group Secretary, Brighton and Lewes Hospital Management Committee, Royal Sussex County Hospital, Brighton, 7 (Brighton 29155), from whom further particulars may be obtained.

MANCHESTER REGIONAL HOSPITAL BOARD.

(*a*) Part-time (6 half-days weekly) ASSISTANT OPHTHALMOLOGIST (Senior Hospital Medical Officer), Preston and Chorley Group of hospitals, mainly at Preston Royal Infirmary. Higher qualification desirable, good experience essential. Appointee will work under guidance of Consultant Ophthalmic Surgeon. 8th January, 1957.

(*b*) Whole-time RESIDENT DEPUTY MEDICAL SUPERINTENDENT AND ASSISTANT PSYCHIATRIST (Senior Hospital Medical Officer), Brockhall Hospital Langho, near Blackburn (a modern and fully equipped colony of over 2000 Beds for mental defectives). Modern detached house available. Good experience in the care of mental defectives required. D.P.M. desirable. 9th January, 1957.

(*c*) Whole-time ASSISTANT ORTHOPÆDIC SURGEON (Senior Hospital Medical Officer) to the Rochdale and District Hospital Group, mainly Rochdale Infirmary and Birch Hill Hospital, Rochdale. Special experience required in the treatment of orthopædic cases, fractures, and trauma. Appointee will work under general direction of Consultant Orthopædic Surgeon. 10th January, 1957.

Application forms from the Senior Administrative Medical Officer to the Board, Cheetwood-road, Manchester, 8, to be returned by dates stated.

NEWCASTLE REGIONAL HOSPITAL BOARD. West CUMBERLAND GROUP OF HOSPITALS. ANÆSTHETIST (Senior Hospital Medical Officer scale). Whole-time or maximum part-time for West Cumberland Group of hospitals; main hospitals, Whitehaven Hospital (124 Beds), Workington Infirmary (118 Beds). The appointee will be required to reside in or within 5 miles of Whitehaven.

Applications, together with names and addresses of 1–3 referees, to be sent to the Senior Administrative Medical Officer, 72, Warwick-road, Carlisle, within 28 days.

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD.

(1) ASSISTANT CHEST PHYSICIAN (whole-time), Senior Hospital Medical Officer grade, Hounslow Chest Clinic, 28, Bell-road, Hounslow, Middlesex. Associated with the Clinic are 26 Beds in Ashford Hospital, and 35 in West Middlesex Hospital. Candidates should have good general medical experience and special experience in treatment of tuberculosis and diseases of the chest. Clinic may be visited by direct appointment.

Applications before 21st January, 1957.

(2) ASSISTANT PSYCHIATRIST (whole-time), Senior Hospital Medical Officer grade, Hill End Hospital, St. Albans (647 Beds). Encouragement given to research. House available or accommodation available for single candidate. Hospital may be visited by direct appointment.

Applications before 23rd January, 1957.

(3) ASSISTANT CHILD PSYCHIATRIST (Senior Hospital Medical Officer grade), 2 half-days a week (1 day), Hertfordshire Child Guidance Service. Candidates may visit by appointment with the Medical Director, Hill End Child Guidance Clinic, Hill End Hospital, St. Albans.

Applications before 25th January, 1957.

Application forms obtainable from, and returnable to, Secretary, North West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1.

OXFORD REGIONAL HOSPITAL BOARD. Assistant RADIOTHERAPIST (Senior Hospital Medical Officer grade) whole-time for the Northampton Area Department of Radiotherapy. Candidates should be in possession of the D.M.R.(T.) and have had experience in radiotherapy. The department at Northampton General Hospital may be visited by arrangement with the Medical Director.

Applications (12 copies), giving age, qualifications, experience, and naming 3 referees, to reach the Secretary, Oxford Regional Hospital Board, 43, Banbury-road, Oxford, by 31st January, 1957.

OXFORD REGIONAL HOSPITAL BOARD. Consultant RADIOLOGIST (part-time) for 8 sessions a week to the Aylesbury/High Wycombe Area Department of Radiology. Duties mainly at High Wycombe War Memorial Hospital and Amersham General Hospital, and the successful candidate will be required to live in this area. Applicants must hold a recognised Diploma in Radiology.

Applications (12 copies), stating name, age, qualifications, and experience, should reach the Secretary, 43, Banbury-road, Oxford, not later than 26th January, 1957.

SCOTLAND. NORTHERN REGIONAL HOSPITAL BOARD. Applications are invited for a Part-time CONSULTANT post (9 notional half-days) in Dermatology, with small amount of V.D. work.

Schedules of application and further particulars are obtainable from the undersigned, with whom applications should be lodged by 5th January, 1957. A. M. FRASER, M.D.,
Secretary and Administrative Medical Officer.
Office of the Northern Regional Hospital Board,
Raigmore, Inverness.

SCOTLAND. NORTHERN REGIONAL HOSPITAL BOARD. Applications are invited for the whole-time post of ASSISTANT PSYCHIATRIST (Senior Hospital Medical Officer grade), at Craig Dunain Hospital, Inverness. House available.

Forms of application and further particulars may be obtained from the undersigned with whom applications should be lodged by 21st January, 1957. A. M. FRASER, M.D.,
Secretary and Administrative Medical Officer.
Office of the Northern Regional Hospital Board,
Raigmore, Inverness.

SHEFFIELD REGIONAL HOSPITAL BOARD. Part-time CONSULTANT GENERAL SURGEON for 3 notional half-days per week required for the Rotherham Hospital, Doncaster Gate, Rotherham.

Application forms and further details from Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield. Forms to be returned by 19th January, 1957.

SHEFFIELD REGIONAL HOSPITAL BOARD. The Board invite applications from registered medical practitioners for an appointment of ASSISTANT ADMINISTRATIVE MEDICAL OFFICER, the salary scale for which is £1680–£80(4)–£100(1)–£2100. The person appointed will be responsible to the Senior Administrative Medical Officer, and will be largely, but not entirely, concerned with mental health matters. Candidates should have had hospital experience, some preferably in a mental hospital. The appointment is subject to the Whitley Council terms and conditions of service, to the National Health Service superannuation regulations, and to 3 months notice on either side.

Applications, stating age, qualifications, details of past and present appointments, and accompanied by the names of 3 referees, should reach the Secretary to the Board, Fulwood House, Old Fulwood-road, Sheffield, 10, by 19th January, 1957.

SOUTH EAST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications are invited for the appointment (whole-time or maximum part-time) of CONSULTANT in Physical Medicine to the Isle of Thanet Group of hospitals. The duties include clinical supervision and a small amount of medical administration of the 250 Beds at Princess Mary's Hospital (Rehabilitation), Wilderness Hill, Margate. Candidates should have had considerable experience in the specialty. A higher qualification in medicine is essential and the appropriate diploma is desirable. Applicants may visit the hospitals concerned.

Apply, stating nationality, age, sex, qualifications, and experience, including details of present appointment and of war service, together with the names and addresses of 3 referees, to the Secretary, Advisory Appointments Committee, South East Metropolitan Regional Hospital Board, 11, Portland-place, W.1, not later than 5th January, 1957.

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD requires a Whole-time Locum Tenens ANÆSTHETIST (Senior Hospital Medical Officer or Consultant) immediately for the Portsmouth Group of hospitals for a period of approximately 3 months. Candidates should have a wide experience in anæsthesia and should possess higher qualifications. Experience in thoracic surgery would be an advantage. Remuneration will be in accordance with the terms and conditions of service of hospital medical and dental staffs.

Applications (3 copies), stating age, qualifications and experience, to the Area Secretary, Highcroft, Romsey-road, Winchester, within 14 days of the appearance of this advertisement.

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD requires Whole-time ASSISTANT ANÆSTHETIST (Senior Hospital Medical Officer grade) for the Kingston (Surrey) Group of hospitals. Candidates must possess F.F.A.R.C.S.

Applications by letter (5 copies), giving date of birth, qualifications, experience, and names of 3 referees, to Secretary (S.1), South West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 19th January, 1957. Applicants may visit hospitals by local arrangement.

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD requires Part-time CONSULTANT RADIOLOGIST (7 half-days per week) for the Chichester Group of hospitals to work under the Director of Radiology for the Group. Candidates must have D.M.R. and wide experience in radiology.

Applications by letter (5 copies), giving date of birth, qualifications, experience, and names of 3 referees, to Secretary (S.1), South West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 19th January, 1957. Applicants may visit the hospitals by local arrangement.

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD requires Part-time CONSULTANT ANÆSTHETIST (5 half-days per week) for the Chichester Group of hospitals. Duties will include some work at Graylingwell (Mental) Hospital.

Applications by letter (5 copies), giving date of birth, qualifications, experience, and names of 3 referees, to Secretary (S.1), South West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 19th January, 1957. Applicants may visit hospitals by local arrangement.

WELSH REGIONAL HOSPITAL BOARD. Whole-time Locum Tenens CONSULTANT PSYCHIATRIST required, Morgannwg Hospital, Bridgend, immediately for approximately 3 months.

Applications, naming 2 referees, to Senior Administrative Medical Officer, Temple of Peace, Cathays Park, Cardiff.

WIGAN AND LEIGH HOSPITAL MANAGEMENT COMMITTEE. Locum ASSISTANT CHEST PHYSICIAN (Senior Hospital Medical Officer) or Locum REGISTRAR. Post available as from 1st January, 1957. Duties include work at 2 busy chest clinics and opportunities to gain experience in Thoracic Surgical Unit.

Applications, with names of 2 referees, to Secretary, Knowsley House, Wigan.

Hospital Services : Junior Appointments

ALBERT DOCK ORTHOPÆDIC AND FRACTURE HOSPITAL, Alnwick-road, E.16. SEAMEN'S HOSPITALS GROUP. SENIOR HOUSE OFFICER for Receiving Room duties required 29th December. Post, which is normally resident, is recognised by the Royal College of Surgeons, and provides excellent experience in a wide variety of traumatic conditions received from the adjacent dockland and from shipping in the Port of London. Salary £745.

Applications, stating age, nationality, qualifications and experience, with the names of 2 recent referees, should be sent to the Secretary, Dreadnought Seamen's Hospital, Greenwich, as soon as possible.

ANNIE McCALL MATERNITY HOSPITAL, Jeffreys-road, S.W.4. Applications are invited from registered Women medical practitioners for the post of RESIDENT OBSTETRIC HOUSE SURGEON (post recognised for the D.Obst.R.C.O.G.). Appointment is for a period of 6 months, vacant 1st February, 1957.

Applications, stating age, qualifications with dates, and nationality, accompanied by copies of 3 recent testimonials, to the Secretary not later than 12th January, 1957.

BETHNAL GREEN HOSPITAL, Cambridge Heath-road, London, E.2. HOUSE SURGEON (pre-registration) required, immediate vacancy.

Applications, with 2 testimonials, to Hospital Secretary.

BROMPTON HOSPITAL, S.W.3. Applications invited for the post of NON-RESIDENT HOUSE PHYSICIAN for 6 months from 1st March, 1957. Duties include work in Outpatient Department and Wards. Experience in E.N.T. work desirable. Salary at the rate of £525 p.a.

Applications, stating age, qualifications with dates, nationality and appointments held, together with copies of testimonials, by 5th January, 1957, to—
KENNETH A. F. MILES, House Governor.

CENTRAL MIDDLESEX HOSPITAL, Park Royal, N.W.10. NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. REGISTRAR required in X-ray Department. Whole-time, non-resident appointment for 1 year in first instance, under supervision of Consultant, will include teaching and some work in Mass X-ray Department. Possession of diploma desirable. Post vacant January, 1957. Hospital may be visited by direct appointment. Salary £850 p.a. in first year, £965 p.a. in the second year. Subject to terms and conditions of service of hospital medical and dental staffs.

Application forms from, and returnable to, Group Secretary, Central Middlesex Group Hospital Management Committee, Park Royal, N.W.10, by 31st December, 1956.

CENTRAL MIDDLESEX HOSPITAL, Park Royal, N.W.10 SENIOR HOUSE OFFICER in General Medicine required, with duties mainly in the Geriatric Department. Good facilities for higher examination and insight into working of general practice. Whole-time appointment for 6 months in first instance. Post vacant 1st February, 1957.

Applications, with 2 testimonials, to Medical Director by 5th January, 1957.

CENTRAL MIDDLESEX HOSPITAL, Park Royal, N.W.10. RESIDENT HOUSE OFFICER required in Paediatric Department. Post-registration appointment recognised for D.C.H. Appointment from 1st February, 1957.

Applications, with 2 testimonials, to Medical Director by 29th December, 1956.

CENTRAL MIDDLESEX HOSPITAL, Park Royal, N.W.10. RESIDENT HOUSE OFFICER required in General Medical Department, including hæmatology and endocrinology. Pre-registration appointment from 1st February, 1957.

Application, with 2 testimonials, to Medical Director by 29th December, 1956.

CENTRAL MIDDLESEX HOSPITAL, Park Royal, N.W.10. RESIDENT HOUSE OFFICER (post-registration) required in Gastro-enterological Department. Appointment from 1st February, 1957.

Applications, with 2 testimonials, to Medical Director by 29th December, 1956.

FINCHLEY CHEST CLINIC, 980, High-road, N.20. North WEST METROPOLITAN REGIONAL HOSPITAL BOARD. REGISTRAR required at above Clinic; duties will include work at Highlands General Hospital (Chest Unit). Vacant 16th February. Good training in general medicine essential and experience in chest diseases desirable. Clinic may be visited by di ect appointment.

Application forms obtainable from, and returnable to, the Secretary, Northern Group Hospital Management Committee, Royal Northern Hospital, N.7, by 4th January, 1957.

FULHAM HOSPITAL, St. Dunstan's-road, Hammersmith, W.6. Applications invited for appointment as SURGICAL REGISTRAR. Post vacant 1st March, 1957. Candidates may visit Hospital by arrangement with the Hospital Secretary.

Applications (6 copies), to be submitted by 4th January, 1957, on forms obtainable from, and returnable to, Group Secretary (L.166), Fulham and Kensington Hospital Management Committee, 5, Collingham-gardens, London, S.W.5.

HACKNEY HOSPITAL, London, E.9. (General—841 Beds.) Applications for the 6-months resident appointment of Pre-registration HOUSE PHYSICIAN (vacant 17th January) should reach the Secretary, above address, by 4th January, quoting HH/HP.

HACKNEY HOSPITAL, London, E.9. (General—841 Beds.) Applications for the 6-months resident appointment of Pre-registration HOUSE SURGEON (vacant 16th January; post recognised for F.R.C.S.) should reach the Secretary, above address, by 4th January, quoting HH/HS.

HENDON ISOLATION HOSPITAL, Goldsmith-avenue, London, N.W.9. (92 infectious diseases beds and 20 gynæcological beds.) JUNIOR HOSPITAL MEDICAL OFFICER (resident) required at above Hospital. Previous similar experience essential.

Apply, stating age, nationality, qualifications and experience, to Group Secretary, Edgware General Hospital, Edgware, Middlesex, by 29th December, 1956.

HIGHLANDS GENERAL HOSPITAL, Winchmore Hill, N.21. HOUSE SURGEON required, vacant 18th January, 1957. Duties mainly orthopædic with some E.N.T. and emergency general surgery. New operating theatre. Outpatient and Casualty Department. Preference given to applicant seeking pre-registration post under Medical Act, 1950.

Applications, with copies of 3 testimonials, and name and address of 1 referee, to Hospital Secretary.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, 60, Grove End-road, London, N.W.8. Applications are invited from pre-registration or registered medical practitioners (Male) for the appointment of HOUSE PHYSICIAN, to become vacant on Wednesday, 16th January, 1957. Appointment will be for a period of 6 months. National Health Service salary.

Applications to reach the Secretary on or before Saturday, 29th December, 1956, together with copies of 3 recent testimonials.

LEWISHAM HOSPITAL, London, S.E.13. Applications are invited for the post of SENIOR HOUSE OFFICER (urology), vacant 27th January and recognised for 6 months training for F.R.C.S. Salary £745 p.a., less £150 for residential emoluments.

Applications, stating age, qualifications, and experience, with copy testimonials or names of referees, to Group Secretary, Lewisham Hospital, S.E.13.

LONDON HOSPITAL, Whitechapel, E.1. Applications are invited for the post of SENIOR HOUSE OFFICER to the Department of Anæsthetics becoming vacant on 1st March, 1957.

Applications (6 copies), together with 6 copies of 3 recent testimonials, should be received by the undersigned by 31st December, 1956. H. BRIERLEY, House Governor.

LONDON JEWISH HOSPITAL, Stepney Green, E.1. (130 Beds.) HOUSE SURGEONS (pre- or post-registration). Posts vacant: (*a*) immediately, (*b*) 3rd January, 1957.

Applications, stating age, experience, &c., and copies of testimonials, to be sent to the Hospital Secretary.

LONDON JEWISH HOSPITAL, Stepney Green, E.1. (130 Beds.) HOUSE PHYSICIAN (pre- or post-registration). Post vacant 5th January, 1957.

Applications, stating age, experience, &c., and copies of testimonials, to be sent to the Hospital Secretary.

NELSON HOSPITAL, Kingston-road, Merton, S.W.20. HOUSE SURGEON (resident), not pre-registration, vacant 21st January, 1957. Post recognised for F.R.C.S.

Applications, stating age, qualifications, &c., with names and addresses of 2 referees, to the Secretary at above address.

LAMBETH HOSPITAL, Brook-drive, S.E.11. Applications are invited for appointment as CASUALTY OFFICER, vacant 1st February, 1957. The successful candidate will be required to carry out locum duties from 14th January, 1957. The post is graded as Senior House Officer or House Officer, according to experience, and is recognised for the F.R.C.S.

Application forms from the Physician-Superintendent. A stamped addressed envelope should be enclosed.

MILDMAY MISSION HOSPITAL, Austin-street, London, E.2. Applications are invited for the pre-registration post of RESIDENT HOUSE PHYSICIAN AND CASUALTY OFFICER, vacant 1st February, 1957. Candidates should be in sympathy with the evangelical aims of the Hospital.

Applications and references to be addressed to the Medical Superintendent as soon as possible.

MILDMAY MISSION HOSPITAL, Austin-street, London, E.2. Applications are invited for the pre-registration post of RESIDENT HOUSE SURGEON, vacant 1st February, 1957. Candidates should be in sympathy with the evangelical aims of the Hospital.

Applications and references to be addressed to the Medical Superintendent as soon as possible.

NORTH EAST METROPOLITAN REGIONAL HOS-PITAL BOARD.

OBSTETRIC REGISTRAR (Female—resident), Thorpe Coombe Maternity Hospital, Forest-road, E.17. Recognised for M.R.C.O.G.

SURGICAL REGISTRAR (resident), Rush Green Hospital, Romford, Essex. Recognised for F.R.C.S.

2 SURGICAL REGISTRARS (resident or non-resident, sleeping in on duty nights), Oldchurch Hospital, Romford, Essex. Recognised for F.R.C.S. (Surgical Unit of 200 Beds.)

Part-time E.N.T. REGISTRAR (non-resident) (4 sessions a week), Queen Elizabeth Hospital for Children, Hackney, E.2. Experience in treatment of diseases of children desirable.

REGISTRAR in Pathology (non-resident), Queen Mary's Hospital for the East End, Stratford, E.15.

ORTHOPÆDIC REGISTRAR (resident or non-resident), Oldchurch Hospital, Romford, Essex. Recognised for F.R.C.S. and provides excellent experience in diagnosis and treatment of orthopædic and accident cases.

Appointments subject to review after 1 year.

Application forms from Secretary, 11A, Portland-place, W.1, to be returned by 5th January, 1957.

QUEEN MARY'S HOSPITAL, Roehampton, London, S.W.15. (408 Beds.) REGISTRAR in Pathology required whole-time. National Health Service terms and conditions.

Detailed applications (4 copies), giving nationality, date of birth, qualifications, experience, present appointments, and names of 3 referees, should reach the Secretary, Ministry of Health, Division 4 (v), Norcross, Blackpool, Lancs, by 12th January, 1957.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.15. Applications are invited for the appointment of CLINICAL ASSISTANT (Skin Department), for 1 session a week on Tuesday mornings. Remuneration £175 p.a.

Applications, together with the names of 2 referees, to Group Secretary, West Ham Group Hospital Management Committee, Stratford, E.15, by 4th January, 1957.

ROYAL EYE HOSPITAL, S.E.1. Lambeth Group Hospital MANAGEMENT COMMITTEE. Applications are invited for the post of SENIOR HOUSE OFFICER from January to 31st March pending an appointment being made on 1st April, 1957.

Applications, together with copies of recent testimonials, should be made to the Secretary, Royal Eye Hospital, St. George's-circus, S.E.1, as soon as possible.

ROYAL MARSDEN HOSPITAL, Fulham-road, S.W.3. Applications are invited for a full-time appointment of REGISTRAR in the Radiotherapy Department from March, 1957. Salary £850 p.a. Candidates not holding a Diploma in Medical Radiology will be considered, especially if they have a higher qualification in medicine or surgery.

Forms of application are obtainable from the House Governor, to whom applications, together with the names of 3 referees, should be sent by 9th January, 1957.

ROYAL MARSDEN HOSPITAL, Fulham-road, S.W.3. ASSISTANT MEDICAL OFFICER in the Department of Physical Medicine in the grade of Part-time Medical Officer. 1 session a week.

Apply on a form to be obtained from the House Governor not later than 9th January, 1957.

ROYAL NORTHERN HOSPITAL, Holloway, N.7. Regis-TRAR in Radiology, X-ray Diagnostic Department, required. D.M.R.D. essential. Hospital may be visited by direct appointment.

Application forms obtainable from, and returnable to, the Secretary, Royal Northern Hospital, Holloway-road, London, N.7, by 3rd January, 1957.

ST. CHARLES' HOSPITAL, Ladbroke-grove, W.10. (581 Beds.) Applications are invited to fill the post of SENIOR HOUSE OFFICER (tuberculosis).

Applications, stating age, qualifications, experience, &c., together with names and addresses of 2 referees, to be forwarded to Hospital Secretary by 1st January, 1957.

ST. GEORGE'S HOSPITAL, S.W.1. Applications are invited for 2 posts of REGISTRAR to the Department of Pathology to work at St. George's Hospital, Hyde Park-corner, and the other hospitals of the St. George's Group. The work will cover all branches of clinical pathology, including morbid anatomy and hæmatology. The appointments will be for 1 year in the first instance, 1 of these posts will be vacant immediately, and 1 in May, 1957.

Applications, stating age, education, qualifications, experience, and the names of 2 referees, should reach the undersigned not later than 12th January, 1957.

P. H. CONSTABLE, House Governor.

ST. MARY'S HOSPITAL, W.2. Applications are invited from registered practitioners for the post of HOUSE OFFICER to the Almroth Wright Wards; graded Senior House Officer. The appointment is for a period of 8 months, with effect from 1st February, 1957.

Applications, stating nationality, date of birth, permanent address, qualifications with dates, details and National Health Service gradings of previous and present appointments, together with the names and addresses of 3 referees, should reach ALAN POWDITCH, House Governor, by 8th January, 1957.

ST. MARY'S HOSPITAL, Paddington, W.2. Applications are invited for the post of SENIOR REGISTRAR in Anæsthetics. F.F.A.R.C.S. essential. The appointment is for a first period of 12 months as from a date to be arranged.

Applications, stating nationality, date of birth, qualifications with dates, details and National Health Service gradings of previous and present appointments, together with the names and addresses of 3 referees, should reach ALAN POWDITCH, House Governor, not later than 2nd January, 1957.

ST. MARY'S HOSPITAL, Paddington, W.2. Applications are invited for the post of Whole-time ANÆSTHETIC REGISTRAR. Candidates should possess the D.A. The appointment is for a first period of 12 months as from a date to be arranged.

Applications, stating nationality, date of birth, qualifications with dates, details and National Health Service gradings of previous and present appointments, together with the names and addresses of 3 referees, should reach ALAN POWDITCH, House Governor, not later than 2nd January, 1957.

ST. NICHOLAS HOSPITAL, Plumstead, S.E.18. Senior HOUSE OFFICER (Casualty, Orthopædic, and Fracture Departments), vacant now. Recognised for F.R.C.S. 6 months appointment and may then be renewed. Salary £745 p.a., less £150 p.a. for residence.

Apply to Group Secretary, Memorial Hospital, Woolwich, S.E.18.

ST. THOMAS'S HOSPITAL, London, S.E.1. Surgical REGISTRAR for a period of 1 year in the first instance. There are 4 Surgical Registrar posts at St. Thomas's and in the Group, which are interchangeable, 2 of them being resident and 2 non-resident.

Applications, naming 2 referees, to the Clerk of the Governors by 5th January, 1957.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.1. Applications are invited for the posts of SENIOR REGISTRAR to the Skin Department, which will be vacant in February, 1957. Attendances will be required on Thursday afternoons.

Further particulars and form of application which must be returned not later than 14th January, 1957, are obtainable from the undersigned.

H. F. RUTHERFORD, House Governor and Secretary.

WEST LONDON HOSPITAL, Hammersmith-road, W.6. Whole-time NON-RESIDENT REGISTRAR (pathology) required as soon as possible.

Applications, stating age, qualifications, experience, names of 2 referees, to Secretary, Board of Governors, Hammersmith, West London and St. Mark's Hospital, Ducane-road, W.12, by 31st December.

WHIPPS CROSS HOSPITAL, London, E.11. Applications are invited for the post of SENIOR HOUSE OFFICER (pathology) at the Area Laboratory at above Hospital, vacant early February, 1957. The post is normally a resident one, but applications will be considered from persons wishing to be non-resident, providing that they will reside near the Hospital and be on call.

Application forms from the Hospital Secretary to be returned by 31st December, 1956.

WHITTINGTON HOSPITAL, London, N.19. Locum Tenens ORTHOPÆDIC REGISTRAR required from 1st January, 1957, for 3 months in the first instance. Large Fracture Clinic.

Applications, with the name of 1 referee, to Medical Superintendent by 31st December, 1956.

WILLESDEN GENERAL HOSPITAL, Harlesden-road, N.W.10. RESIDENT CASUALTY OFFICER (Senior House Officer grade) required 7th January, 1957. 6 months appointment. Post recognised under Fellowship regulations.

Applications, with full particulars and references, to Hospital Secretary, by 27th December, 1956.

WIMBLEDON HOSPITAL, Thurstan-road, Copse Hill, S.W.20. RESIDENT HOUSE SURGEON (not pre-registration) vacant early January. Salary £525.

Applications, giving age, qualifications, &c., with names and addresses of 2 referees, to the Secretary at above address.

ALTON, HAMPSHIRE. HENRY GAUVAIN HOSPITAL. (114 Beds.) LORD MAYOR TRELOAR GROUP HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (resident) required for the above Hospital for a period in the first instance of 6 months. Post vacant 1st February, 1957. Non-pulmonary tuberculosis, orthopædic and general surgery. Married quarters available in small cottage on estate. Primary or Final F.R.C.S. candidate preferred.

Applications, together with the names and addresses of 3 referees, to Hospital Secretary, Henry Gauvain Hospital, Alton, Hants.

ASHTON, HYDE AND GLOSSOP HOSPITAL MANAGEMENT COMMITTEE.

2 HOUSE PHYSICIANS required at Ashton-under-Lyne General Hospital. 1 post vacant end of January, 1 vacant mid-February. Preference given to pre-registration candidates.

SENIOR HOUSE OFFICER (obstetrics/gynæcology) required at Ashton-under-Lyne General Hospital. Bed complement 32 obstetric and 26 gynæcology. Recognised for M.R.C.O.G Vacant 3rd February, 1957.

Applications, with copies of 2 testimonials, to Group Secretary, General Hospital, Ashton-under-Lyne, Lancs.

ABERDEEN GENERAL HOSPITALS BOARD OF MANAGEMENT. Applications are invited for the following House Officer appointments for a period of 6 months from 1st February to 31st July, 1957. The appointments are approved as Pre-registration Service posts, and tenure for the prescribed period will count towards full registration on the medical register for provisionally registered practitioners.

Aberdeen Royal Infirmary

HOUSE SURGEON for gynæcology ward. Resident.
2 HOUSE SURGEONS for orthopædic wards. Resident.
HOUSE SURGEON for ophthalmic ward. Resident.
HOUSE PHYSICIAN for skin, radium, and dental ward. Resident.
HOUSE PHYSICIAN in the Department of Psychological Medicine. Resident.
HOUSE PHYSICIAN in the Outpatients (Skin and V.D.) Department. Non-resident.

Woodend General Hospital

2 HOUSE SURGEONS for orthopædic wards. Resident.
2 HOUSE SURGEONS for gynæcology wards. Resident.
1 HOUSE SURGEON for general surgical ward. Resident.
2 HOUSE SURGEONS for thoracic wards. Resident.

Salary and conditions of service in accordance with the terms issued by the Department of Health for Scotland.

Applications, with full details, and giving the names of 2 referees, should be lodged immediately with the Secretary, Aberdeen General Hospitals, P.O. Box 92, 62, Queen's-road, Aberdeen.

ABERDEEN SPECIAL HOSPITALS BOARD OF MANAGEMENT. 1 HOUSE OFFICER (pre- or post-registration) required for the period 1st February–31st July, 1957. The post offers experience in pædiatric surgery and is classified for pre-registration purposes as surgical.

Applications, with full details, to Group Medical Superintendent, Royal Aberdeen Hospital for Sick Children, Westburn-drive, Aberdeen.

ASHFORD HOSPITAL, Ashford, Middlesex. (560 Beds.) STAINES GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT HOUSE OFFICER (Male) for general surgical and medical duties. 6 months appointment, not suitable for pre-registration candidates.

Applications, stating age, qualifications and experience, with copies of up to 3 recent testimonials, to Medical Director of Hospital immediately.

AYLESBURY, BUCKINGHAMSHIRE. STOKE MANDEVILLE HOSPITAL. (619 Beds.) RESIDENT HOUSE PHYSICIAN for the Neurological Unit (a part of the Department of Neurology of the United Oxford Hospitals), vacant 25th January, 1957. Recognised pre-registration post, also open to registered practitioners, in which case status up to Senior House Officer may be awarded.

Applications, with copies of 2 testimonials, to the Administrative Officer.

BARNSTAPLE. NORTH DEVON INFIRMARY. (105 Beds.) HOUSE SURGEON (pre-registration). Post vacant early January.

Applications to Group Secretary, North Devon Hospital Management Committee, 19, Alexandra-road, Barnstaple.

BEDFORD (near). BROMHAM HOSPITAL. (434 Beds for mental defectives and 60 at Annexe near Sandy.) REGISTRAR in Psychiatry required (resident). Hospital may be visited by direct appointment with the Medical Superintendent (phone: Oakley 295).

Application forms obtainable from, and returnable to, Secretary, Bedford Group Hospital Management Committee, 3, Kimbolton-road, Bedford.

BEDFORD GENERAL HOSPITAL. (439 Beds.) House SURGEON required. Pre- or post-registration. Recognised for F.R.C.S. Post offers exceptional opportunities for general experience in busy acute Surgical Units.

Inquiries and applications, with copies of 2 recent testimonials, to Group Secretary, 3, Kimbolton-road, Bedford.

BEVERLEY, YORKSHIRE. WESTWOOD HOSPITAL. (229 Beds.) HOUSE PHYSICIAN. House Officer or Senior House Officer grading according to experience. Pre-registration post, but fully qualified practitioners may apply.

Apply Group Secretary.

BIDEFORD AND DISTRICT HOSPITAL. (51 Beds.) Applications invited for post of HOUSE OFFICER, now vacant. Flat available for married officer.

Applications, stating names of 2 referees, to Group Secretary, North Devon Hospital Management Committee, 19, Alexandra-road, Barnstaple.

BIRMINGHAM (near). THE MIDLAND CENTRE FOR NEUROSURGERY, Holly-lane, SMETHWICK, near BIRMINGHAM. (75 Beds.) RESIDENT SENIOR HOUSE OFFICER. Appointment for 1 year (renewable) will be vacant from 1st February, 1957.

Applications, with names of 2 referees, to the Group Secretary, West Bromwich and District Hospitals Management Committee, Edward-street, West Bromwich.

BIRMINGHAM REGIONAL HOSPITAL BOARD.

(1) **Dudley Stourbridge Group, The Guest Hospital, Dudley**

REGISTRAR (general surgery) for The Corbett Hospital, Stourbridge (114 Beds). Experience specialty essential, higher qualification desirable. Resident. Post vacant January, 1957.

(2) **West Bromwich Group, Edward-street, West Bromwich**

REGISTRAR (general surgery) for West Bromwich and District General Hospital. Recognised for F.R.C.S. Duties in Casualty Department. Opportunity to deputise for Resident Surgical Officer in general surgery work. Experience specialty required. Resident.

Application forms from Group Secretaries to be returned by 31st December, 1956.

BIRMINGHAM ACCIDENT HOSPITAL, Bath-row, BIRMINGHAM, 15. (215 Beds and 8 House Surgeons.) HOUSE SURGEON (resident), pre-registration post vacant 23rd January, 1957. Recognised for purpose of casualty by R.C.S.(Eng.). Teaching programme by Consultant staff. Appointment for 6 months, some of which may be spent at applicant's request in 42-Bedded Medical Research Council's Burns Unit.

Apply, naming 2 referees, to Administrator within 7 days of this advertisement.

BIRMINGHAM, 9. LITTLE BROMWICH GENERAL HOSPITAL. HOUSE SURGEON (Male/Female). Recognised as pre-registration appointment.

Apply Physician-Superintendent with copies of 2 testimonials or names of referees.

BIRMINGHAM, 9. LITTLE BROMWICH GENERAL HOSPITAL. HOUSE PHYSICIAN (Male/Female), vacant 12th January, 1957. Recognised as pre-registration appointment.

Apply Physician-Superintendent, with copies of 2 testimonials or names of referees.

BISHOP AUCKLAND, co. DURHAM. THE GENERAL HOSPITAL. (350 Beds.) HOUSE SURGEON required. Recognised pre-registration post.

Apply, naming 2 referees, to K. G. T. LUXFORD, Group Secretary, South West Durham Hospital Management Committee, at the above address.

BISHOP AUCKLAND, co. DURHAM. THE GENERAL HOSPITAL. (350 Beds.) HOUSE PHYSICIAN required. Fully registered practitioner or pre-registration candidate.

Apply, naming 2 referees, to K. G. T. LUXFORD, Group Secretary, South West Durham Hospital Management Committee, at the above address.

BOGNOR WAR MEMORIAL HOSPITAL. (32 Beds.) RESIDENT SENIOR HOUSE OFFICER required to work under visiting Consultant Surgeon and Physician, also casualty work. Salary £745 p.a., less £150 p.a. for residence. Modern fully equipped theatre. Good liaison with Chichester main hospitals and with local general practitioners. Also gives opportunity for postgraduate reading.

Apply, giving 3 referees names, to Group Secretary, Chichester Group Hospital Management Committee, 174, Broyle-road, Chichester.

BOURNEMOUTH. ROYAL VICTORIA HOSPITAL, Shelley-road. BOURNEMOUTH AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of GENERAL HOUSE SURGEON, which becomes vacant on 28th December. Favourable consideration will be given to suitable applicants for subsequent House Physician appointments. The appointment is recognised for the F.R.C.S. examination and for pre-registration purposes.

Applications to the Hospital Secretary.

BRADFORD, 1. ROYAL EYE AND EAR HOSPITAL. JUNIOR HOUSE SURGEON (ophthalmology), vacant 7th February, 1957. Recognised for D.O.M.S. and F.R.C.S.

Applications, stating age, nationality, qualifications, and experience, with copy testimonials, to Secretary, Bradford Royal Infirmary.

BRENTWOOD, ESSEX. NORTH-EAST METRO-POLITAN REGIONAL BLOOD TRANSFUSION CENTRE. JUNIOR HOSPITAL MEDICAL OFFICER required for full-time duties with mobile teams at donor sessions. Opportunity exists for training in blood-transfusion serology. Salary £775–£50–£1075 p.a.

Applications, giving age, qualifications, experience and names of 2 referees, to the Director as soon as possible.

BRIGHTON. ROYAL SUSSEX COUNTY HOSPITAL. (312 Beds.) 2 CASUALTY HOUSE SURGEONS. Duties include work in Orthopædic and Traumatic Unit. Vacant mid-January and February. Recognised for pre-registration and F.R.C.S.

Applications, stating usual particulars, and naming 2 referees, to the Administrative Officer, Royal Sussex County Hospital, Brighton.

BRISTOL AND COSSHAM/FRENCHAY HOSPITAL MANAGEMENT COMMITTEE. 2 SENIOR HOUSE OFFICERS required in the Thoracic Surgery Department, which is the Regional Thoracic Surgery Centre (120 Beds) for the South West.

Applications, with full particulars, should be addressed to the Group Secretary, Frenchay Hospital, Bristol, quoting "Thoracic."

BRISTOL. COSSHAM/FRENCHAY HOSPITAL MAN-AGEMENT COMMITTEE. FRENCHAY HOSPITAL. (542 staffed beds—expanding.) Vacancy shortly occurs for the post of SENIOR HOUSE OFFICER (Regional Department of Neurosurgery), tenable for 6–12 months. The post offers useful surgical experience and the opportunity of gaining a working knowledge of neurological diagnosis. Recognised for F.R.C.S.

Applications to the Secretary, Frenchay Hospital, quoting "N.S.F." Names of 2 referees required.

BURTON GENERAL HOSPITAL. (250 Beds.) Junior HOSPITAL MEDICAL OFFICER ANÆSTHETIST (resident or non-resident) required at the above Hospital. Recognised for D.A.

Applications to Group Secretary, General Hospital, Burton upon Trent, as soon as possible.

BLACKBURN. ROYAL INFIRMARY. (262 acute beds.) HOUSE SURGEON required for 23rd January, 1957. Post recognised for F.R.C.S. and approved for pre-registration purposes.

Applications to Secretary, Hospital Management Committee Office, Royal Infirmary, Blackburn.

BLACKBURN. ROYAL INFIRMARY. (262 acute beds.) HOUSE PHYSICIAN required for 23rd January, 1957. Post recognised for pre-registration purposes.

Apply to Secretary, Hospital Management Committee Office, Royal Infirmary, Blackburn.

BLACKBURN AND DISTRICT HOSPITAL MANAGE-MENT COMMITTEE. REGISTRAR (medicine) required beginning of February, 1957. Resident post. Duties at Royal Infirmary, Blackburn (262 acute beds) as arranged by Consultant Physician.

Application forms from Secretary, Hospital Management Committee Office, Royal Infirmary, Blackburn.

BLACKBURN. QUEEN'S PARK HOSPITAL. (640 general beds.) BLACKBURN AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. HOUSE PHYSICIAN required, post falling vacant on 19th January, 1957. Recognised for pre-registration purposes.

Apply to Group Secretary, Hospital Management Committee Office, Royal Infirmary, Blackburn.

CAMBRIDGE. ADDENBROOKE'S HOSPITAL. Applications are invited for the posts of SENIOR REGISTRAR and REGISTRAR (radiology—Diagnostic Department).

Apply, with full particulars and names of 3 referees, to Secretary by 5th January.

CAMBRIDGE. ADDENBROOKE'S HOSPITAL. House SURGEON to Orthopædic Department for 6 months from 1st February, 1957. Recognised Pre-registration Service.

Apply, stating age, nationality, qualifications and experience with dates, and copies of 3 testimonials, to Secretary by 5th January. Interviews 15th January.

CANTERBURY. KENT AND CANTERBURY HOS-PITAL. (277 Beds.) GYNÆCOLOGICAL HOUSE SURGEON required at Highland Court Annexe, a unit of 25 gynæcological beds situated 3 miles from the above Hospital, with all ancillary services available. Recognised for M.R.C.O.G. 6 months appointment. Post vacant early January, 1957. National Health Service salary and conditions.

Applications, together with copies of 2 recent testimonials, to be addressed to the Hospital Secretary at the above Hospital.

CARDIFF. THE UNITED CARDIFF HOSPITALS. Applications are invited for the post of SURGICAL REGISTRAR at the Cardiff Royal Infirmary, vacant immediately.

Application forms are available from the Secretary to the Board, at Cardiff Royal Infirmary, Newport-road, Cardiff, and should be returned within 14 days of the appearance of this advertisement.

CARDIFF. THE UNITED CARDIFF HOSPITALS. Applications are invited for the appointment of SENIOR HOUSE OFFICER in Medicine at the Cardiff Royal Infirmary, to commence 1st February, 1957. The post will later combine the duties of Resident Medical Officer at the Cardiff Royal Infirmary, probably from about mid-March, and the holder will then be required to be resident in the Hospital. Resident accommodation during the first 6 weeks or so of the appointment is not available.

Application forms are obtainable from the Secretary to the Board at the Cardiff Royal Infirmary, Newport-road, Cardiff, and should be returned within 14 days of the appearance of this advertisement.

CHERTSEY, SURREY. ST. PETER'S HOSPITAL (late Botley's Park War Hospital). (430 Beds.) RESIDENT HOUSE SURGEON (Senior House Officer or Intern) required for the Gynæcological (30 Beds) and E.N.T. (16 Beds) Departments. Duties to commence on 15th February, 1957. Salary in accordance with terms and conditions of National Health Service.

Applications, together with names and addresses of referees, to be sent to the Physician-Superintendent, St. Peter's Hospital, as soon as possible.

CHESTER. BARROWMORE HOSPITAL, Great Barrow, CHESTER. Male SENIOR HOUSE OFFICER (medical) required. Salary £745 p.a., less £150 for residence. The hospital is modern in all respects and contains Regional Thoracic Surgical Unit. Applications from ex-patients considered.

Any further information may be obtained from, and applications, stating names of 2 referees, to Physician-Superintendent.

CHICHESTER. ST. RICHARD'S HOSPITAL. (400 Beds.) CHICHESTER GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, 2 HOUSE SURGEONS for general surgery (pre-registration) for 6 months only in the first instance. Posts vacant 1st January, 1957. Posts recognised for F.R.C.S.

Applications, stating age, qualifications and experience, giving names of 2 persons from whom reference may be obtained, should be sent to the Surgeon-Superintendent.

COLCHESTER HOSPITAL MANAGEMENT COM-MITTEE. Applications are invited for :—

Essex County Hospital, Colchester (185 Beds)

HOUSE OFFICER (surgical). First, second, third or pre-registration post, tenable for 6 months. Recognised for F.R.C.S.

Black Notley Hospital, Braintree (516 Beds)

Posts of HOUSE SURGEON and HOUSE PHYSICIAN. The successful applicant will serve 6 months as House Surgeon followed by 6 months as House Physician. First, second, third or pre-registration posts. Surgical post includes duties in general surgical and gynæcological wards. Recognised for F.R.C.S. Medical post includes duties in medical and pædiatric wards.

Applications, with copies of 3 testimonials, to Group Secretary, 14, Pope's-lane, Colchester.

COULSDON, SURREY. CANE HILL HOSPITAL. Cane HILL HOSPITAL MANAGEMENT COMMITTEE. SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. REGISTRAR in Psychiatry, whole-time, resident (if unmarried) or non-resident. The Hospital has 4 outpatient clinics and undertakes postgraduate teaching in association with the Institute of Psychiatry. Every facility will be given for further study. Candidates may visit the Hospital by arrangement with the Physician-Superintendent.

Application forms, returnable within 14 days, may be obtained from the Group Secretary.

DERBY. DERBYSHIRE ROYAL INFIRMARY. House SURGEON (general surgery). Pre-registration candidates eligible. Vacant 3rd January, 1957.

Apply, stating details with copies of 2 testimonials, to Secretary.

DARLINGTON MEMORIAL HOSPITAL. (208 Beds.) Applications are invited for the post of RESIDENT HOUSE SURGEON (approved pre-registration appointment) which post is recognised for the F.R.C.S. (Eng.). Salary in accordance with national scale.

Apply, giving age and references, to the undersigned forthwith. G. W. BECKWITH, Group Secretary.

DRIFFIELD, YORKSHIRE. NORTHFIELD SANATORIUM. (78 Beds.) SENIOR HOUSE PHYSICIAN, vacant now. Offers experience all branches of tuberculosis within the Group, including surgery, M.M.R., and clinics. Time for study. Ex-patients welcome. £150 for full residence.

Applications to Group Secretary, Westwood Hospital, Beverley, Yorkshire.

DRIFFIELD, YORKSHIRE. EAST RIDING GENERAL HOSPITAL. (247 Beds.) HOUSE PHYSICIAN, vacant early January. Approved pre-registration post. Fully qualified practitioners may apply. Duties include acute and chronic medicine. Good general experience for first house appointment.

Apply Group Secretary, Westwood Hospital, Beverley, Yorkshire.

DURHAM HOSPITAL MANAGEMENT COMMITTEE.

Dryburn Hospital, Durham (303 Beds)

HOUSE PHYSICIAN for Pædiatric unit of 42 Beds. Approved pre-registration appointment and recognised for D.C.H.

HOUSE SURGEON. Approved pre-registration post and recognised under the F.R.C.S. regulations.

General Hospital, Chester-le-Street (204 Beds)

HOUSE PHYSICIAN (general medicine). Approved pre-registration post.

SENIOR HOUSE OFFICER (general surgery).

HOUSE SURGEON. Approved pre-registration post.

All the above posts vacant 1st February, 1957.

Apply, with names and addresses of 2 referees, to Group Secretary, Dryburn Hospital, Durham.

EAST ANGLIAN REGIONAL HOSPITAL BOARD. SENIOR REGISTRAR in Department of Child Psychiatry, Ipswich and East Suffolk Hospital. Post provides comprehensive training in child and family psychiatry. Higher qualification desirable. Candidates invited to visit clinic by direct arrangement with Hospital Management Committee Secretary, Ipswich and East Suffolk Hospital (Anglesea Road Wing), Ipswich.

SENIOR REGISTRAR in Mental Deficiency and Child Psychiatry, Little Plumstead (near Norwich) Mental Deficiency Group of hospitals and Child Psychiatry Service. The Group (1000 Beds), which is progressive and the centre for much outpatient work including child psychiatry clinics, is recognised as a training centre for the D.P.M. by the Conjoint Board for 1 year. House or flat available. Candidates invited to visit the Hospitals by direct arrangement with the Medical Superintendent.

Applications, stating age, experience and names of 3 referees, to Board's Senior Administrative Medical Officer, 117, Chesterton-road, Cambridge, by 31st December, 1956.

ENFIELD, MIDDLESEX. CHASE FARM HOSPITAL. RESIDENT HOUSE SURGEON (approved pre-registration, first or second post), vacant 2nd February, 1957. Duties with a General Surgical Unit. Post recognised by the Royal College of Surgeons. 6 months appointment.

Applications, with names and addresses of 2 referees, to the Group Secretary, Enfield Group Hospital Management Committee, at Chase Farm Hospital, The Ridgeway, Enfield, Middlesex.

EPPING. ST. MARGARET'S HOSPITAL. Senior HOUSE OFFICER (pathology). Post vacant 1st January, 1957. Salary on national scale, less deduction for board, lodging, &c. Busy department in large general hospital with easy access to London.

Applications, with names of 2 referees, to the Group Secretary, Epping Group Hospital Management Committee, "Oak Cottage," The Plain, Epping, Essex, by 28th December, 1956.

EPSOM DISTRICT HOSPITAL, Dorking-road, Epsom, SURREY. RESIDENT HOUSE OFFICER (obstetrics and gynæcology) required, 1st February, 1957. Pre-registration post. Recognised in obstetrics by the College for M.R.C.O.G. and D.Obst.R.C.O.G. purposes.

Applications, stating age, qualifications and experience with copies of 2 recent testimonials, should be sent as soon as possible to Group Secretary at above address.

EPSOM DISTRICT HOSPITAL, Dorking-road, Epsom, SURREY. RESIDENT HOUSE SURGEON required 5th February. Pre-registration post recognised for F.R.C.S.

Applications, stating age, qualifications and experience with copies of 2 recent testimonials, should be sent as soon as possible to Group Secretary at above address.

EPSOM DISTRICT HOSPITAL, Dorking-road, Epsom. RESIDENT HOUSE SURGEON required 19th January for Orthopædic, E.N.T. and Eye Departments. Pre-registration post.

Applications, stating age, qualifications, and experience, with copies of 2 recent testimonials, should be sent immediately to Group Secretary at above address.

EPSOM, SURREY. HORTON HOSPITAL. Horton HOSPITAL MANAGEMENT COMMITTEE, SOUTH WEST METROPOLITAN REGION. Applications are invited for the post of SENIOR REGISTRAR in Psychiatry with duties at above Hospital. Applicants must possess the D.P.M. and have had experience in adult psychiatry. Residential accommodation is available for a single person. Candidates may visit the Hospital by arrangement with the Physician-Superintendent.

Application forms obtainable from the Group Secretary, Horton Hospital, Epsom, Surrey, to whom they should be returned within 2 weeks from the date of the advertisement.

GLASGOW. BELVIDERE INFECTIOUS DISEASES HOSPITAL. JUNIOR HOUSE OFFICER (pre-registration). The appointment will be for 6 months from 1st February next and is a recognised pre-registration post in medicine.

Apply in writing, giving 2 names for reference, to the Medical Superintendent, Belvidere Infectious Diseases Hospital, London-road, Glasgow, E.1.

GLASGOW NORTHERN HOSPITALS BOARD OF MANAGEMENT. Applications are invited for the post of SENIOR HOUSE OFFICER in Pathology and Hæmatology at Stobhill General Hospital, Glasgow. The appointment will be for 1 year in the first instance.

Applications, stating age, qualifications, experience and present appointment, and naming 2 referees, to be lodged with the Secretary, 13, Woodside-place, Glasgow, C.3, by 26th December, 1956.

GLASGOW OPHTHALMIC INSTITUTION. Junior HOUSE OFFICER (pre-registration). The appointment will be for 6 months from 1st February next and is a recognised pre-registration post in surgery.

Apply in writing, giving 2 names for reference, to the Medical Superintendent, Glasgow Royal Infirmary, 84, Castle-street, Glasgow, C.4.

GLASGOW ROYAL INFIRMARY. Junior Hospital MEDICAL OFFICER in Burns and Plastic Unit.

Apply in writing not later than 31st December, 1956, giving 3 names for reference, to the Secretary, Board of Management for Glasgow Royal Infirmary and Associated Hospitals, 135, Buchanan-street, Glasgow, C.1.

GUILDFORD. ROYAL SURREY COUNTY HOSPITAL. (233 Beds.) SENIOR HOUSE OFFICER for ophthalmology and neurology. Post is vacant on 24th January. Resident accommodation is available. It is tenable for 6 months and renewable. Whitley Council terms. Recognised for both F.R.C.S. and D.O. examinations.

Apply as soon as possible, with copies of 3 testimonials, to Hospital Secretary.

HALIFAX. ROYAL HALIFAX INFIRMARY. (301 Beds.) SENIOR HOUSE OFFICER in General Surgery required. Post vacant in January, 1957. Salary £745 p.a. with deduction of £150 p.a. for board, residence, &c.

Applications to the Group Secretary, Royal Halifax Infirmary, Halifax.

HASTINGS. ST. HELEN'S HOSPITAL. (493 Beds.) SENIOR HOUSE OFFICER for pædiatrics and general medicine. Post vacant 25th January, 1957. National scale of salary.

Apply to Hospital Administrator. Closing date 2nd January, 1957.

HEMEL HEMPSTEAD, HERTFORDSHIRE. WEST HERTS HOSPITAL. HOUSE SURGEON (pre-registration) required.

Applications, giving full details and 2 names for reference, should be sent to the Hospital Secretary as soon as possible.

HERTFORD COUNTY HOSPITAL. (171 Beds. Hospital situated 21 miles from London.) Applications are invited for the undermentioned appointments :—

HOUSE SURGEON (general) first or second post. To commence 1st January, 1957.

HOUSE SURGEON (general, gynæcology, and obstetrics), first or second post. To commence 1st January, 1957.

Pre-registration posts ; recognised under F.R.C.S. regulations.

Applications to Group Secretary, Hertford Hospital Management Committee, County Hospital, Hertford, Herts.

HERTFORD COUNTY HOSPITAL. (171 Beds. Hospital situated 21 miles from London.) RESIDENT CASUALTY OFFICER (Senior House Officer grade) with attachment to Pædiatrician and Ophthalmic Consultant. Salary £745 p.a., less £150 p.a. residential emoluments. Recognised under F.R.C.S. regulations. Appointment to commence immediately.

Apply, with full details and references, to Group Secretary, Hertford Hospital Management Committee, County Hospital, Hertford, Herts.

HORNCHURCH. ST. GEORGE'S HOSPITAL. Junior HOSPITAL MEDICAL OFFICER (resident) required from 1st January, 1957, at this Hospital which accommodates 404 chronic sick patients. The post offers excellent geriatric experience.

Applications should be forwarded to the Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford, as soon as possible.

HUDDERSFIELD ROYAL INFIRMARY. (312 Beds.) HUDDERSFIELD HOSPITAL MANAGEMENT COMMITTEE. HOUSE SURGEON required to commence duties as soon as possible. The post is recognised as a pre-registration appointment and for the F.R.C.S. Salary in accordance with national scale.

Applications, together with copies of 3 recent testimonials, to be addressed to the undersigned as soon as possible.

H. J. Je[illegible]ON, Secretary to the Management Committee.

The Ro[illegible] Infirmary, Huddersfield.

ILKLEY. MIDDLETON HOSPITAL. (430 Beds.) Resident SENIOR HOUSE OFFICER (surgical) required for major Thoracic Surgical Unit at the above Hospital.

Applications, stating age, nationality, qualifications, and experience, to Hospital Secretary.

IPSWICH AND EAST SUFFOLK HOSPITAL. Anglesea ROAD WING. Locum Tenens CASUALTY OFFICER (Senior House Officer grade) required from 21st January to 9th February, 1957.

Applications, with full particulars, to Hospital Secretary.

IPSWICH AND EAST SUFFOLK HOSPITAL. Anglesea ROAD WING. (356 Beds.) Applications are invited for the post of HOUSE SURGEON to the E.N.T. and Ophthalmic Departments, vacant immediately. The post is recognised for pre-registration and for the D.L.O. examination.

Applications, giving full particulars and copies of recent testimonials, to Hospital Secretary.

IPSWICH AND EAST SUFFOLK HOSPITAL. Anglesea ROAD WING. (356 Beds.) Applications are invited for the post of HOUSE SURGEON to Consultant General Surgeon. The post, which is vacant in early January, is recognised for pre-registration and for the F.R.C.S. examinations.

Applications, with copies of recent testimonials, to Hospital Secretary.

ISLEWORTH. WEST MIDDLESEX HOSPITAL. North WEST METROPOLITAN REGIONAL HOSPITAL BOARD. REGISTRAR (Pædiatric Department), whole-time, vacant January. Previous pædiatric experience essential. Duties include work in Children's Unit (90 Beds), Neonatal Unit and pædiatric outpatient clinics. Candidates may visit Hospital by appointment with Medical Director.

Application forms obtainable from, and returnable to, Secretary, South West Middlesex Group Hospital Management Committee, West Middlesex Hospital, Isleworth, by 1st January, 1957.

LANCASTER. BEAUMONT HOSPITAL, Slyne-road. PÆDIATRIC REGISTRAR (resident). Previous pædiatric experience essential. Duties include experience in Children's Medical Ward, in Neonatal Unit, and pædiatric outpatient clinics. Unit recognised for D.C.H. Candidates may visit Hospital by direct appointment.

Applications, together with names of 2 referees, to Group Secretary, Royal Lancaster Infirmary, Lancaster.

LANCASTER AND KENDAL HOSPITAL MANAGEMENT COMMITTEE. Whole-time REGISTRAR (pathology), non-resident. Main duties at Central Laboratory, Royal Lancaster Infirmary. Appointment for 1 year in the first instance; recognised for D.Path.

Applications, stating age, qualifications and previous experience, together with names of 3 referees, to Group Secretary, Lancaster and Kendal Hospital Management Committee, Royal Lancaster Infirmary, Lancaster.

LEEDS REGIONAL HOSPITAL BOARD. Registrar vacancies.

General Surgery

(i) Dewsbury, Batley and Mirfield Group (120 general surgical beds). May include some duties in the Casualty Department. Resident.

(ii) Halifax Group. 1 of 3 similar posts. Duties divided approximately between general and orthopædic surgery (195 general surgical and 85 orthopædic beds). May include some duties in the Casualty Department. Preferably resident.

(iii) Hull Royal Infirmary (80 general surgical beds) and other hospitals in the Hull A Group. Non-resident. Includes additional duties in the Casualty Department.

General Medicine

Halifax General Hospital (110 general medical beds in the Group). Resident.

Infectious Diseases

Castle Hill Hospital, Cottingham (167 infectious diseases beds). Resident.

Thoracic Surgery

Thoracic Surgical Units at the Bradford Royal Infirmary and The Hospital, Middleton (aggregate of 60 Beds, both non-tuberculous and tuberculous cases). Non-resident.

Applications, stating age, qualifications, and details of present and previous appointments with dates, together with the names and addresses of 3 referees, to the Secretary, Joint Registrars Committee, Park-parade, Harrogate, by 5th January, 1957.

LEEDS. THE UNITED LEEDS HOSPITALS. The GENERAL INFIRMARY AT LEEDS. REGISTRAR in Dermatology required, for 1 year in first instance, from 1st January, 1957. Terms and conditions of service for hospital medical staff apply.

Applications, stating age, qualifications, previous posts with dates, and 3 names for reference, should be sent to the Sub-Dean, School of Medicine, Leeds, 2, as soon as possible.

LINCOLN COUNTY HOSPITAL. (200 Beds.) Applications are invited for the pre-registration post of HOUSE SURGEON. The post is tenable for a period of 6 months from 1st February, 1957, and can be followed by a pre-registration post of House Physician if desired.

Applications, giving full particulars, should be addressed to—

R. W. HOWICK, Group Secretary.

LINCOLN COUNTY HOSPITAL. (200 Beds.) Applications are invited for the pre-registration post of HOUSE PHYSICIAN. The post is tenable for a period of 6 months from 1st February, 1957, and can be followed by a pre-registration post of House Surgeon if desired.

Applications, giving full particulars, should be addressed to—

R. W. HOWICK, Group Secretary.

LIVERPOOL. NEWSHAM GENERAL HOSPITAL, Belmont-road, LIVERPOOL, 6. (1300 Beds.) Applications are invited from registered medical practitioners (Male or Female) for appointment as THORACIC HOUSE PHYSICIAN (Senior House Officer or Junior Hospital Medical Officer status, according to qualifications and experience). Duties include some work in general medical wards in addition to 97 thoracic medicine beds. Appointment vacant from the end of January, 1957. Post may be resident or non-resident. Salary: Junior Hospital Medical Officer £775–£50–£1075 p.a., less £170 p.a. if resident; Senior House Officer £745 p.a., less £150 p.a. if resident.

Applications to the Physician-Superintendent at the Hospital as soon as possible.

LIVERPOOL. THE UNITED LIVERPOOL HOSPITALS. LIVERPOOL REGIONAL HOSPITAL BOARD. Applications are invited for temporary appointment to the post of SENIOR REGISTRAR in Surgery to take up duty at the Liverpool Royal Infirmary as soon as possible for the period to 30th September, 1957. The person appointed will be eligible to apply in the summer of 1957 for a further appointment for the year beginning 1st October, 1957.

Apply by 5th January, 1957, on form obtainable from the Secretary, The United Liverpool Hospitals, 80, Rodney-street, Liverpool, 1.

MAIDENHEAD HOSPITAL, Berkshire. Applications invited for post of RESIDENT SENIOR HOUSE OFFICER (general medical) at above Hospital, with duties at Maidenhead St. Mark's Hospital (mainly geriatric cases), and at Maidenhead Isolation Hospital.

Applications, stating age, qualifications, experience and nationality, with names of 3 referees, to Secretary.

MAIDSTONE. KENT COUNTY OPHTHALMIC AND AURAL HOSPITAL. (113 Beds.) MID-KENT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of SENIOR HOUSE SURGEON in the E.N.T. Department of the above Hospital. Post vacant mid-December, 1956. There are 55 E.N.T. beds and 6 specialist operating sessions each week. Valuable experience is available, and the post is recognised for the purpose of the F.R.C.S. and the D.L.O. Salary will be £745 a year, less £150 a year for residential emoluments.

Applications to the Administrative Officer, Kent County Ophthalmic and Aural Hospital, Maidstone, Kent.

MANCHESTER, 8. CRUMPSALL HOSPITAL. Applications are invited for the post of REGISTRAR in Obstetrics and Gynæcology at the above Hospital. Vacant end of January 1957. Preference will be given to applicants who possess the M.R.C.O.G. This post offers extensive clinical experience and is recognised for the M.R.C.O.G.

Applications, with names of 2 referees, by 31st December, 1956, to Group Secretary, North Manchester Hospital Management Committee, Crumpsall Hospital, Manchester.

MANCHESTER REGIONAL HOSPITAL BOARD, South MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. The Board invite applications from registered practitioners for the post of REGISTRAR (pædiatrics) (resident or non-resident) at the Duchess of York Hospital for Babies vacant 1st March, 1957. Duties include attendance in the Outpatient Department as well as in the wards. Post provides opportunities for teaching and research. D.C.H. or M.R.C.P. an advantage.

Applications, stating age, present post, experience and the names of 2 referees, to be forwarded to the Group Secretary, Withington Hospital, Manchester, 20.

MANCHESTER REGIONAL HOSPITAL BOARD. SURGICAL REGISTRAR (Resident Surgical Officer), post vacant Rochdale Infirmary.

Apply at once to Group Secretary, Central Offices, Birch Hill Hospital, Rochdale.

MANCHESTER REGIONAL HOSPITAL BOARD. South MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the post of RESIDENT SURGICAL OFFICER (Registrar grade) at Wythenshawe Hospital. The post will include responsibility for general surgical and gynæcological beds, and is recognised by the Royal College of Surgeons.

Applications, stating age, qualifications, present post, experience, and names of 2 referees, to the Group Secretary, Withington Hospital, Manchester, 20.

MANCHESTER. UNITED MANCHESTER HOSPITALS. SAINT MARY'S HOSPITALS, MANCHESTER. Applications are invited from registered medical practitioners, Male or Female, for the post of HOUSE PHYSICIAN in the Neonatal Unit of Saint Mary's Hospitals (attached to the University Department of Child Health) for a period of 6 months, vacant on 1st February, 1957. Previous hospital experience essential and pædiatric experience desirable. Duties include the care of the newborn in the Maternity Department, the care of infants in the infants' ward and work in the clinics under the charge of the Department of Child Health. Salary in accordance with national scale.

Applications, stating qualifications and experience together with the names of 3 referees, should be sent to the undersigned not later than 31st December, 1956.

A. R. WISE, General Superintendent.

Saint Mary's Hospitals, Whitworth Park, Manchester, 13.

MANCHESTER. UNITED MANCHESTER HOSPITALS. MANCHESTER ROYAL INFIRMARY, MANCHESTER, 13. SENIOR HOUSE OFFICER to the Department of Anæsthetics, to commence as soon as possible. Whole-time, resident appointment for 6 months, renewable for a second and possibly a third 6 months. Residence £155 p.a.

Application form obtainable from the undersigned, to be returned by 5th January, 1957. G. H. TAYLOR, Secretary.

MANCHESTER. UNITED MANCHESTER HOSPITALS. MANCHESTER ROYAL INFIRMARY, MANCHESTER, 13. SENIOR HOUSE OFFICER to the Department of Psychiatry, to commence on 1st April, 1957. Whole-time resident appointment (Man or Woman), tenable for 6 months, renewable for a second and possibly a third 6 months. Experience in general medicine essential. This is a first training post, and candidates who do not already possess the D.P.M. are expected to read for the D.P.M. (Manch.). Residential charge £155 p.a.

Application form obtainable from the undersigned, to be returned by 5th January, 1957. G. H. TAYLOR, Secretary.

MANCHESTER, 23. WYTHENSHAWE HOSPITAL. SOUTH MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the post of SENIOR HOUSE OFFICER (plastic surgery) with 3 sessions per week in general surgery at the above Hospital which is a General Hospital with 75 plastic surgery beds.

Applications, with full details, to the Group Secretary, Withington Hospital, Manchester, 20.

NEWTON ABBOT HOSPITAL, S. Devon. Senior House OFFICER (medicine), Male or Female, required 30th December, 1956. Duties divided equally between 20 acute medical beds in General Section and 140 geriatric beds. This officer is also required to stand in when Senior House Surgeon otherwise engaged. Married quarters available.

Applications, stating qualifications, nationality, age, with copy testimonials, to be sent to the Group Secretary, Torquay District Hospital Management Committee, Torbay Hospital, Torquay, S. Devon.

MACCLESFIELD AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. HOUSE OFFICER in Surgery. Pre-registration post. Acute Surgical Unit of 100 Beds. Recognised for F.R.C.S. purposes. Main casualty duties undertaken by Senior Resident Practitioner.

Apply immediately to Group Secretary, "Willerby House," Cumberland-street, Macclesfield.

NEWCASTLE REGIONAL HOSPITAL BOARD.

REGISTRAR OBSTETRICIAN AND GYNÆCOLOGIST (whole-time), non-resident. Sunderland Group of hospitals. Post recognised for M.R.C.O.G.

REGISTRAR ORTHOPÆDIC SURGEON (whole-time), resident or non-resident. Darlington Group of hospitals. Single accommodation available.

REGISTRAR SURGEON (whole-time) at Ingham Infirmary, South Shields. Single accommodation available. Post recognised for F.R.C.S.

REGISTRAR PSYCHIATRIST (whole-time). Department of Psychological Medicine, Newcastle General Hospital. Department under clinical direction of Professor of Psychological Medicine, University of Durham.

Applications, with names, and addresses of 3 referees, to Senior Administrative Medical Officer (for first 3 appointments), and Regional Psychiatrist (last appointment), Regional Hospital Board, Benfield-road, Newcastle upon Tyne, 6, within 14 days.

NEWMARKET GENERAL HOSPITAL. Applications are invited for the post of HOUSE SURGEON, vacant 1st January, 1957. Duties include surgical house charge of general surgical, E.N.T., and eye cases. Post resident and available for 6 months, recognised for pre-registration.

Applications, with copies of 3 testimonials, to the Medical Superintendent.

NEWPORT, I.W. ST. MARY'S HOSPITAL. Isle of Wight GROUP HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (salary £745) or HOUSE OFFICER for Pre-registration Service (salary £425–£525, according to experience) required as House Surgeon. Post recognised for F.R.C.S. Vacant 23rd January. Married accommodation if required.

Applications, with names of 2 referees, to Hospital Secretary as soon as possible.

NORWICH. NORFOLK AND NORWICH HOSPITAL. Applications are invited for the following appointments vacant 1st February, 1957. All are pre-registration posts.

(1) **Norfolk and Norwich Hospital, Norwich**

HOUSE PHYSICIAN (2) (Male or Female). Duties entirely general medical.

HOUSE SURGEON (Male or Female). Post recognised for Final F.R.C.S. examination requirements. Duties entirely general surgical.

JUNIOR CASUALTY OFFICER (Male or Female). 2 Casualty Officers employed in the Department.

OBSTETRIC HOUSE SURGEON (Male or Female). Post recognised for Final D.Obst.R.C.O.G. examination requirements.

JUNIOR ORTHOPÆDIC HOUSE SURGEON (Male or Female). 2 Orthopædic House Officers employed in the Department.

(2) **Jenny Lind Hospital for Children, Norwich**

RESIDENT MEDICAL OFFICER.

HOUSE SURGEON.

The above posts may be Male or Female at the Jenny Lind Hospital for Children, which forms the entire Pædiatric Department of the United Norwich Hospitals. The duties are under the direct supervision of the Consultant staff of the Norfolk and Norwich Hospital.

(3) **West Norwich and Norwich Isolation Hospitals, Norwich**

HOUSE PHYSICIAN (3) (Male or Female). Duties include acute medical, geriatric and infectious diseases. The beds at these Units are under the control of the Consultant Physicians of the Norfolk and Norwich Hospital, and the successful candidates will be required to undertake general medical duties under their supervision.

(4) **West Norwich Hospital, Norwich**

HOUSE SURGEON (2) (Male or Female). Post recognised for Final F.R.C.S. examination requirements. Duties general surgical and including burns and plastic work. The beds at this Hospital are under the control of the Consultant staff of the Norfolk and Norwich Hospital.

(5) **Norfolk and Norwich Hospital, Norwich**

Applications are also invited for the following appointments vacant 1st February, 1957 :—

SENIOR CASUALTY OFFICER AND HOUSE SURGEON to the Septic Block (Male or Female), Senior House Officer status. 2 Casualty Officers employed in the departments. Recognised for Final F.R.C.S. examination requirements.

SENIOR ORTHOPÆDIC HOUSE SURGEON (Male or Female), Senior House Officer status. 2 Orthopædic House Officers employed in the department.

Membership of a Medical Defence Society is a condition of appointment in each case.

Applications, giving full details with names of 2 referees, to Group Secretary, Hospital Management Committee, St. Stephen's-road, Norwich, by 29th December, 1956.

NOTTINGHAM AND MIDLAND EYE INFIRMARY. Required, SENIOR HOUSE OFFICER, duties to commence on 7th January, 1957. Salary and conditions of service in accordance with Ministry regulations. A furnished flat is available for married candidates, if required.

Applications, stating age, qualifications, and experience, together with copies of testimonials, to be sent to the Group Secretary, General Hospital, Nottingham.

NOTTINGHAM GENERAL HOSPITAL. 2 resident pre-registration or registered HOUSE SURGEONS required; one immediately, one 1st January.

Applications, stating age, qualifications and experience, together with copies of testimonials, to be sent to the Group Secretary.

NOTTINGHAM GENERAL HOSPITAL. Applications are invited for the post of SENIOR HOUSE OFFICER (casualty), duties to commence 31st January, 1957. Establishment 3. Recognised for F.R.C.S. Post offers wide experience of casualty work.

Applications, stating age, nationality, qualifications, and experience, together with copies of testimonials, to be sent to Secretary, General Hospital, Nottingham.

NORTHWOOD, MIDDLESEX. MOUNT VERNON HOSPITAL AND RADIUM INSTITUTE. NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. MEDICAL REGISTRAR (resident) required at above Hospital which may be visited by direct appointment with Resident Medical Officer.

Application forms obtainable from, and returnable to, the Group Secretary, Harefield and Northwood Group Hospital Management Committee, Mount Vernon Hospital, Northwood, Middlesex, by 5th January, 1957.

PERTH. COUNTY AND CITY OF PERTH GENERAL HOSPITALS. The following House Officer posts will fall vacant on 1st February, 1957 :—

Bridge of Earn Hospital

* 1 SENIOR HOUSE SURGEON (Fracture and Orthopædic Unit).
* 3 HOUSE SURGEONS (Fracture and Orthopædic Unit).
† 1 HOUSE SURGEON or SENIOR HOUSE SURGEON (E.N.T. ward).
‡ 1 SENIOR HOUSE OFFICER (anæsthetics).

Perth Royal Infirmary

‡ 1 SENIOR HOUSE OFFICER (anæsthetics).

Notes :

(1) All Junior House Officer posts are recognised for Pre-registration Hospital Service.

(2) Posts marked * are recognised by the Royal College of Surgeons under the regulations for the F.R.C.S.

(3) Post marked † is recognised under the regulations for the D.L.O.

(4) Posts marked ‡ are recognised under the regulations for the D.A. and F.F.A.R.C.S.

Applications, giving details of age, qualifications, experience, and the names of 2 referees, should be sent to the Group Medical Superintendent, Perth Royal Infirmary, Perth.

PETERBOROUGH. MEMORIAL HOSPITAL. PETERBOROUGH AND STAMFORD HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the position of HOUSE PHYSICIAN which will become vacant on 24th January, 1957. The appointment will be for 6 months.

Applications, with testimonials, should be addressed to the Secretary, Memorial Hospital, Peterborough.

PETERBOROUGH. THE MEMORIAL HOSPITAL AND OBSTETRIC ANNEXES. PETERBOROUGH AND STAMFORD HOSPITAL MANAGEMENT COMMITTEE. HOUSE SURGEON (obstetrics and gynæcology). Applications are invited for vacancy on 28th January, 1957. Busy Gynæcological Department and 54 obstetric beds. Unit consists of a Consultant, Registrar and 2 House Surgeons. (Recognised for D.Obst.R.C.O.G.)

Application forms from Secretary.

PLYMOUTH. SOUTH DEVON AND EAST CORNWALL HOSPITAL.

SENIOR HOUSE OFFICER in Surgery, vacant 1st February, 1957. Recognised for the F.R.C.S. Greenbank Road Section.

HOUSE SURGEON (pre-registration post), vacant 1st January, 1957. Recognised for the F.R.C.S. Freedom Fields Section.

Applications, stating age, nationality, qualifications and experience, together with the names and addresses of 3 referees, to be sent to—

ARTHUR R. CASH, Group Secretary, Plymouth,
South Devon and East Cornwall General Hospital Group.
7, Nelson-gardens, Stoke, Plymouth.

PONTYPRIDD AND RHONDDA HOSPITAL MANAGEMENT COMMITTEE.

East Glamorgan Hospital, Church Village, near Pontypridd (316 Beds and large Outpatient Department. Committee's base Hospital serving population of 174,000. Recognised for M.R.C.O.G., F.R.C.S., D.C.H., F.F.A. R.C.S., D.A.)

SENIOR HOUSE OFFICER (obstetrics and gynæcology) to commence 13th February, 1957.

2 HOUSE OFFICERS (medicine).

HOUSE OFFICER (pædiatrics).

4 HOUSE OFFICERS (surgery) (to include duties at Porth and District Hospital).

2 HOUSE OFFICERS (obstetrics).

Posts to commence 1st February, 1957.

Llwynypia Hospital, Llwynypia, Rhondda (190 Beds, including acute medical and chronic sick beds)

HOUSE OFFICER (medicine) to commence as soon as possible. Person appointed will also undertake duties at the Group Infectious Diseases Hospital when required.

Applications, stating age, qualifications and experience, together with copies of 2 recent testimonials, to be sent to the Group Secretary, Pontypridd and Rhondda Hospital Management Committee, Courthouse-street, Pontypridd.

PORTSMOUTH GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of SENIOR HOUSE OFFICER (medical) vacant 3rd January, 1957. The duties will be equally divided between work in the acute medical wards, outpatients and a geriatric assessment unit of 76 Beds. The appointment affords an opportunity of seeing large numbers of acute cases and is an excellent one for those studying for a higher medical qualification.

Applications, together with the names of 2 referees, should be sent to E. H. HURST, Group Secretary.

Management Committee Offices, St. Mary's Hospital,
Portsmouth.

PORTSMOUTH GROUP HOSPITAL MANAGEMENT COMMITTEE.

Royal Portsmouth Hospital

HOUSE PHYSICIAN (pre-registration), 65 medical beds, vacant 4th January, 1957.

HOUSE OFFICER (pædiatric and medical), 30 Beds. Pre-registration. Vacant 16th January.

Applications, stating age, experience and qualifications, together with the names of 2 referees, should be forwarded as soon as possible to E. H. HURST.

St. Mary's Hospital, Milton-road, Portsmouth.

PORTSMOUTH. ST. JAMES HOSPITAL FOR MENTAL AND NERVOUS DISEASE, GROUP 49. SOUTH WEST METROPOLITAN REGION. ASSISTANT PSYCHIATRIST (Junior Hospital Medical Officer grade). The Hospital is approved as a Psychiatric Teaching Hospital and the post offers excellent experience in the treatment of the neuroses, the psychoses, the maladjusted child and the problems of delinquency. The Neurological Department of the Hospital is also recognised by the examining bodies and arrangements are made to enable junior medical staff to fulfil the D.P.M. regulations regarding mental deficiency. All modern treatments are carried out and there are facilities for all investigations including electro-encephalography. Intending candidates may visit the Hospital by appointment.

Applications, stating age, experience, qualifications and the names and addresses of 2 referees, should be sent to the Physician-Superintendent within 14 days of the appearance of this advertisement.

PORTSMOUTH. SAINT MARY'S HOSPITAL. (700 Beds.) Applications are invited for the appointment of JUNIOR HOSPITAL MEDICAL OFFICER (resident-married or single quarters) wanted at once for duties as follows :—

General responsibility for the staff of House Officers. Medical Officer for 2 mental wards (172 Beds). Casualty Officer for a small Casualty Department and other medical duties which may be defined from time to time.

The successful applicant will be free to act as General Practitioner for the resident nursing staff. He will be expected to maintain a close liaison with the Group Secretary who is responsible for the general administration of the Hospital. The appointment in the first instance will be for a period of 3 years.

Applications, stating age, experience and qualifications, together with names of 2 referees should be forwarded as soon as possible to— E. H. HURST,

Portsmouth Group Hospital Management Committee.

St. Mary's Hospital, Milton-road, Portsmouth.

RHYMNEY AND SIRHOWY VALLEYS HOSPITAL MANAGEMENT COMMITTEE. Pre-registration posts.

St. James Hospital, Tredegar (160 medical, obstetric, and chronic sick beds)

HOUSE OFFICER (obstetrics), vacant 1st February.

HOUSE PHYSICIAN, vacant 1st February.

General Hospital, Tredegar (56 acute surgical beds)

HOUSE SURGEON, vacant 1st February.

Caerphilly District Hospital, near Cardiff (226 acute general beds)

HOUSE OFFICER (obstetrics), vacant 1st February.

HOUSE SURGEONS (2 posts), vacant 1st February.

Please apply to Group Secretary, Rhymney and Sirhowy Valleys Hospital Management Committee, Central Offices, Caerphilly-road, Ystrad Mynach, Hengoed, Glamorgan, by 4th January.

ROMFORD, ESSEX. OLDCHURCH HOSPITAL. (722 Beds.) SENIOR HOUSE OFFICER (neurosurgery) required from 18th January, 1957. Suitable for candidates seeking higher medical or surgical qualifications. Recognised for the F.R.C.S. (Eng.).

Apply to Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford, as soon as possible.

ROMFORD, ESSEX. RUSH GREEN HOSPITAL. (301 Beds.) RESIDENT HOUSE OFFICER (general surgery) required from 25th January, 1957. Post is recognised for pre-registration purposes and for F.R.C.S.

Applications should be forwarded immediately to Medical Superintendent stating also names of 2 referees.

ROMFORD, ESSEX. VICTORIA HOSPITAL. (99 Beds.) RESIDENT HOUSE SURGEON (Male) required from 17th January, 1957. Post not approved for pre-registration purposes.

Applications should be forwarded immediately to the Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford.

ROMFORD, ESSEX. VICTORIA HOSPITAL. (99 Beds.) Temporary SURGICAL REGISTRAR (Male) required from 1st January, 1957.

Applications should be forwarded immediately to Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford.

REDHILL COUNTY HOSPITAL, Earlswood Common, REDHILL. REGISTRAR in Anæsthetics. Whole-time resident appointment, recognised F.F.A.R.C.S. and D.A. Married quarters available, partly furnished.

Application forms from Secretary, Redhill Hospital Management Committee, Earlswood Mount, Pendleton-road, Redhill, Surrey.

READING COMBINED HOSPITALS. Area Department OF OBSTETRICS AND GYNÆCOLOGY. (100 Beds.) Applications are invited from registered medical practitioners for the resident post of HOUSE SURGEON to the above Department. The appointment, which is vacant on 1st January, 1957, is for 1 year, with 6 months gynæcology at the Royal Berkshire Hospital, and 6 months in the Maternity Unit at Battle Hospital. Both appointments are recognised for the Diplomas of the Royal College of Obstetricians and Gynæcologists.

Write, stating age and qualifications with dates, nationality and present appointment, with copy of 1 recent testimonial, to Secretary, Royal Berkshire Hospital, Reading.

READING AND DISTRICT HOSPITAL MANAGE-MENT COMMITTEE. Applications are invited for the post of RESIDENT SENIOR HOUSE OFFICER (Area Accident and Orthopædic Department), vacant mid-December. Recognised for F.R.C.S. Duties including work in area Casualty Department at Battle Hospital, Reading (300 Beds). Person appointed will work with Registrar and House Officers.

Apply, stating nationality, present post and qualifications with dates, together with names of 2 referees, to Group Secretary, 3, Craven-road, Reading.

SALISBURY GROUP HOSPITAL MANAGEMENT COM-MITTEE. PLASTIC AND ORAL SURGERY CENTRE, ODSTOCK HOSPITAL, SALISBURY. SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications are invited for the whole-time appointment of PLASTIC SURGICAL REGISTRAR which falls vacant on 28th February. Post provides wide experience of all aspects of plastic surgery including treatment of burns in a special Burns Unit, and opportunities for research. Some previous experience in general surgery essential. Married accommodation could possibly be made available.

Application forms obtainable from Group Secretary, Odstock Hospital, Salisbury, and should be returned by 9th January.

SALISBURY GENERAL HOSPITAL. Salisbury Group HOSPITAL MANAGEMENT COMMITTEE. SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of RESIDENT SURGICAL OFFICER (Registrar) at above Hospital. Post vacant 1st March, 1957.

Further details and application forms obtainable from, and should be returned to, Group Secretary, Odstock Hospital, Salisbury, by 9th January.

SALISBURY GENERAL HOSPITAL. Applications are invited for the appointment of RESIDENT HOUSE SURGEON/HOUSE PHYSICIAN to run consecutively in this order from 19th February, 1957, for a period of 6 months in each post. The post is open to pre-registration candidates.

Apply, naming 2 referees, to Group Secretary, Salisbury Group Hospital Management Committee, Odstock Hospital, Salisbury.

SCOTLAND. SOUTH-EASTERN REGIONAL HOS-PITAL BOARD. SENIOR REGISTRAR to the Royal Edinburgh Hospital for Mental and Nervous Disorders. The Hospital, which is linked with the University Department of Psychological Medicine and includes the Professorial Unit in the Jordanburn Nerve Hospital, offers exceptional opportunities for varied clinical work, teaching and research. During the tenure of the post opportunities for interchange of duty and training at other centres in the Region may be available under arrangements made between the South-Eastern Regional Hospital Board and the University Department of Psychological Medicine. Single accommodation is available. Applicants must hold a Diploma in Psychological Medicine or a higher qualification in medicine. The Hospital may be visited by arrangement with the Physician-Superintendent.

Apply, giving particulars of age, qualifications and previous experience, together with the names of 3 referees, to the Secretary, 11, Drumsheugh-gardens, Edinburgh, 3, by 12th January.

SCOTLAND. SOUTH-EASTERN REGIONAL HOS-PITAL BOARD. REGISTRAR in Infectious Diseases at the City Hospital, Edinburgh.

Apply, giving particulars of age, qualifications and previous experience, and the names of 2 referees, to the Secretary, 11, Drumsheugh-gardens, Edinburgh, 3, by 12th January.

SCOTLAND. SOUTH-EASTERN REGIONAL HOS-PITAL BOARD. SENIOR REGISTRAR in the Regional Pool of Anæsthetists, based on the Royal Infirmary of Edinburgh. The successful candidate will be seconded for periods of duty in peripheral hospitals, details of which may be obtained on application.

Apply, stating age, qualifications and previous experience, and the names of 3 referees, to the Secretary, 11, Drumsheugh-gardens, Edinburgh, 3, by 12th January.

SCOTLAND. SOUTH-EASTERN REGIONAL HOS-PITAL BOARD. REGISTRAR in Medical Pædiatrics at the Royal Hospital for Sick Children, Edinburgh, vacant on 19th February, 1957.

Apply, giving particulars of age, previous experience and qualifications, and the names of 2 referees, to the Secretary, 11, Drumsheugh-gardens, Edinburgh, 3, by 12th January.

SCUNTHORPE AND DISTRICT WAR MEMORIAL HOSPITAL. (267 Beds. Recognised for training for F.R.C.S.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT REGISTRAR (Orthopædics) required. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 31st December, 1956, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

SIDCUP AND SWANLEY HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (casualty and orthopædic) required immediately. The successful applicant will serve 3 months in the Orthopædic Department and 3 months as Casualty Officer. The post is recognised under the Fellowship regulations as a period of 6 months casualty training.

Applications, stating age, qualifications and experience, together with names and addresses of 2 referees, should be sent to Secretary, Queen Mary's Hospital, Sidcup, Kent.

SHEFFIELD. KING EDWARD VII ORTHOPÆDIC HOSPITAL, Rivelin Valley-road. (144 Beds.) SHEFFIELD NO. 3 HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the post of SENIOR HOUSE OFFICER (resident) at the above Hospital. The post, which is normally held for 1 year in the first instance, will be subject to the terms and conditions of service for hospital medical staff. Salary £745 p.a. Emolument charge, £150 p.a.

Applications, with names of 2 referees, to Group Secretary, Sheffield No. 3 Hospital Management Committee, Lodge Moor Hospital, Sheffield, 10.

SHEFFIELD. THE UNITED SHEFFIELD HOSPITALS. Applications invited for the post of SENIOR REGISTRAR in Clinical Pathology. Possession of a higher qualification desirable but not essential. The appointment is for 1 year in the first instance and will be reviewed annually. It has been agreed in principle between the Board of Governors of the United Sheffield Hospitals and the Sheffield Regional Hospital Board that the appointment, if extended for the full period, will be divided, subject to satisfactory work and progress, between the United Sheffield Hospitals and a hospital in the Region (at present the Derbyshire Royal Infirmary).

Applications, stating age, qualifications and experience, with the names of 3 referees, should be sent not later than 5th January, 1957, to the Chief Administrative Officer, The United Sheffield Hospitals, West-street, Sheffield, 1.

SHOTLEY BRIDGE GENERAL HOSPITAL, Shotley BRIDGE, CO. DURHAM. (557 Beds.) NORTH WEST DURHAM HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the resident post of SENIOR HOUSE OFFICER (casualty). Salary £745 p.a., according to experience. Deduction of £150 p.a. for board, lodging, &c. 12 months appointment. Post recognised for F.R.C.S.

Applications, stating age, qualifications, experience, and enclosing copies of 2 recent testimonials, to the Secretary/Superintendent.

ST. ALBANS CITY HOSPITAL, St. Albans, Hertford-SHIRE. (384 Beds.) HOUSE SURGEON (House Officer grade) required for 1 of the 2 general surgical teams. Recognised for F.R.C.S. Post vacant 7th January, 1957, and tenable for 6 months. Preference given to candidates seeking post under the Medical Act, 1950.

Applications to Secretary, Mid Herts Group Hospital Management Committee, Bleak House, Catherine-street, St. Albans.

ST. HELENS AND DISTRICT HOSPITAL MANAGE-MENT COMMITTEE. WHISTON HOSPITAL, PRESCOT. (892 Beds.) Applications are invited for the appointment of RESIDENT ANÆSTHETIST at the above Hospital. The post is in the Senior House Officer grade, and is recognised for training for the Fellowship of the Faculty of Anæsthetists.

Applications, stating age, qualifications and experience, and giving 2 names for reference, should be sent to the undersigned immediately. N. RICHARDS, Secretary.

Group Office, Whiston Hospital, Prescot.

STAFFORD. STAFFORDSHIRE GENERAL INFIR-MARY. (175 Beds—Recovery Unit 32 Beds.) HOUSE SURGEON (pre-registration post), vacant 26th December. At end of term of service the successful applicant will be considered for appointment to a pre-registration post of House Physician if he or she has not held such an appointment.

Applications to Group Secretary, Stafford Hospital Management Committee, 13, Foregate-street, Stafford.

STAFFORD. STAFFORDSHIRE GENERAL INFIR-MARY. (175 Beds—Recovery Unit 32 Beds.) HOUSE PHYSICIAN (pre-registration post), vacant 10th January. At end of term of service the successful applicant will be considered for appointment to a pre-registration post of House Surgeon if he or she has not held such an appointment.

Applications to Group Secretary, Stafford Hospital Management Committee, 13, Foregate-street, Stafford.

STOKE-ON-TRENT. CITY GENERAL HOSPITAL. Applications invited for HOUSE OFFICER (medical), vacant mid-January. Recognised pre-registration post.

Detailed applications to Group Secretary, Hospital Management Committee, Princes-road, Stoke-on-Trent.

STOKE-ON-TRENT. NORTH STAFFORDSHIRE ROYAL INFIRMARY. SENIOR HOUSE OFFICER (E.N.T.) required, vacant very shortly. Recognised F.R.C.S. and D.L.O.

Detailed applications, with copy testimonials, to Group Secretary, Hospital Management Committee, Princes-road, Stoke-on-Trent.

SOUTH EAST METROPOLITAN REGIONAL HOS-PITAL BOARD. Applications are invited for an appointment as Whole-time SENIOR REGISTRAR in Anæsthetics to fill a vacancy in the approved trainee establishment at the Tunbridge Wells Group of hospitals, for duty mainly in the Plastic Surgery and Jaw Injuries Centre at the Queen Victoria Hospital, East Grinstead. Experience is available in general as well as specialised anæsthetics. Candidates should have had general experience in anæsthetics and hold the D.A. or F.F.A.R.C.S. The appointment will be in accordance with the terms and conditions of service of hospital medical and dental staffs (England and Wales) and will be for 1 year in the first instance.

Applications, giving particulars of age, qualifications and experience with relevant dates, together with the names and addresses of 3 referees, to be sent to the Secretary, Registrars Committee, South East Metropolitan Regional Hospital Board, 11, Portland-place, London, W.1, not later than 12th January, 1957.

SOUTHAMPTON EYE HOSPITAL. (32 Beds. Recognised for D.O. examination.) RESIDENT SENIOR HOUSE OFFICER required.

Applications, with copies of testimonials, should be forwarded as soon as possible to Secretary, Southampton Group Hospital Management Committee, Bullar-street.

SOUTHAMPTON. ROYAL SOUTH HANTS HOS-PITAL. (278 Beds. Recognised for F.R.C.S.) CASUALTY OFFICER (Senior House Officer grading) required mid-January.

Applications, with copies of testimonials, to be submitted as soon as possible, to the Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

SOUTHAMPTON. ROYAL SOUTH HANTS HOS-PITAL. (278 Beds.) RESIDENT HOUSE SURGEON required beginning February. Pre-registration candidates eligible.

Applications, with copies of recent testimonials, should be forwarded to Group Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

SHREWSBURY. ROYAL SALOP INFIRMARY AND COPTHORNE HOSPITAL. (500 Beds.) RESIDENT ANÆSTHETIST (Senior House Officer). Post recognised for F.F.A.R.C.S. Registrar also employed. Vacant 1st January, 1957.

Applications and copy testimonials to Group Secretary, Shrewsbury Hospital Group, Royal Salop Infirmary, Shrewsbury.

SHREWSBURY. ROYAL SALOP INFIRMARY. CHIL-DREN'S UNIT. SENIOR HOUSE OFFICER or HOUSE OFFICER (pædiatric). Appointment for 6 months in the first instance. The Unit consists of medical, surgical and fever beds. Vacant 5th January, 1957. Married quarters available.

Applications, with copy testimonials, to Group Secretary, Shrewsbury Hospital Group, Royal Salop Infirmary, Shrewsbury.

SWANSEA. MORRISTON HOSPITAL. (501 Beds.) GLANTAWE HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the resident post of SENIOR HOUSE OFFICER in the Obstetric and Gynæcological Unit of the above Hospital. Vacancy on 1st January, 1957.

Applications, with full particulars, together with copies of 2 recent testimonials, should be sent to the Medical Superintendent of the Hospital. T. E. JONES, Group Secretary.

SWANSEA. MOUNT PLEASANT HOSPITAL. (236 Beds.) GLANTAWE HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the resident post of SENIOR HOUSE OFFICER in Obstetrics for the Maternity Unit of 40 Beds at the above Hospital. The post, which will become vacant on 1st February, 1957, is for a period of 12 months, and is recognised for the D.Obst.R.C.O.G. examination.

Applications, stating age, qualifications and experience, together with copies of 2 recent testimonials, should be sent to the Hospital Secretary not later than 28th December, 1956.

T. E. JONES, Group Secretary.

SWINDON AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. SWINDON HOSPITALS. Applications invited for post of RESIDENT HOUSE PHYSICIAN (1 of 2) in acute Medical Unit of 64 Beds at St. Margaret's Hospital. Recognised for training under pre-registration internship regulations and vacant on 6th January, 1957.

Full details, with names of 3 referees, to Secretary, 7, Okus-road, Swindon, immediately.

SWINDON AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Applications invited for the appointment of SENIOR HOUSE OFFICER as Casualty Officer and Orthopædic House Surgeon at Great Western Hospital, Swindon. Post recognised by R.C.S. for 6 months of years training under Fellowship regulations. Work of Accident and Orthopædic Department, associated with Nuffield Orthopædic Centre (Wingfield Morris Orthopædic Hospital), Oxford, includes large number of industrial injuries. Salary £745 p.a., less charge for residential emoluments.

Full details and names of 3 referees to Secretary, 7, Okus-road, Swindon, Wilts, immediately.

TAPLOW, near MAIDENHEAD. CANADIAN RED CROSS MEMORIAL HOSPITAL. REGISTRAR required to the Special Unit for Research in Juvenile Rheumatism. Post offers scope for those interested in research, pædiatrics, rheumatology or cardiology.

Application forms from, and returnable to, Secretary, Windsor Hospital Management Committee, Alma-road, Windsor, by 6th January.

TAPLOW, near MAIDENHEAD. CANADIAN RED CROSS MEMORIAL HOSPITAL. HOUSE SURGEON required for post, vacant 31st January. Preference given to persons seeking pre-registration post.

Applications, stating age, qualifications with dates, with copies of 2 testimonials, to Secretary.

TAPLOW, near MAIDENHEAD. CANADIAN RED CROSS MEMORIAL HOSPITAL. HOUSE SURGEON required for post, vacant 25th January. Preference given to persons seeking pre-registration post.

Applications, stating age, qualifications with dates, with copies of 2 testimonials, to Secretary.

TORQUAY, TORBAY HOSPITAL. (166 general beds.) RESIDENT HOUSE OFFICER (surgical), Male or Female, required approximately middle January, 1957. Post recognised for F.R.C.S. and pre-registration purposes. There is a complement of 6 Resident House Officers.

Applications, stating qualifications, nationality, and age, together with copy testimonials (quoting reference F.955/74) to the Group Secretary, Torquay District Hospital Management Committee, Torbay Hospital, Torquay, S. Devon.

TORQUAY, TORBAY HOSPITAL. Resident Casualty OFFICER (Senior House Officer status) required. There is a complement of 6 Resident House Officers.

Applications, as soon as possible (quoting Ref. F.955/76), stating qualifications, nationality, age, with copy testimonials, to the Group Secretary, Torquay District Hospital Management Committee, Torbay Hospital, Torquay, S. Devon.

WATFORD, HERTFORDSHIRE. PEACE MEMORIAL HOSPITAL. (208 Beds.) Applications are invited for the post of HOUSE SURGEON at the above Hospital. This is a pre-registration post and is recognised for F.R.C.S. Salary according to the National Health Service scale.

Applications, with copies of recent testimonials, to the Administrator.

WELSH REGIONAL HOSPITAL BOARD. Registrar (general medicine), Caernarvon and Anglesey General Hospital Bangor (130 Beds). Non-resident. Subject to review end of first year.

Application forms from Senior Administrative Medical Officer, Temple of Peace, Cathays Park, Cardiff, within 14 days.

WINCHESTER. ROYAL HAMPSHIRE COUNTY HOS-PITAL. (313 Beds.) HOUSE SURGEON to the Senior Surgeon, vacant 1st January.

Applications, with copies of 2 testimonials, to be sent to the Group Secretary.

WIGAN AND LEIGH HOSPITAL MANAGEMENT COMMITTEE.

Royal Albert Edward Infirmary, Wigan

3 HOUSE SURGEONS (pre-registration posts).

Leigh Infirmary

HOUSE SURGEON (pre-registration post).

Vacant early January.

Applications, with names of 2 referees, to the Secretary, Knowsley House, Wigan.

WINDSOR CHEST CLINIC. Registrar required. Good training in general medicine essential, and special experience in chest diseases desirable. This Clinic, which may be visited by direct arrangement with Physician-in-Charge, has 50 Beds attached, and is in close contact with Harefield and Pinewood Chest Hospitals.

Application forms from, and returnable to, Secretary, Windsor Group Hospital Management Committee, Alma-road, Windsor, by 30th December.

WOKING. VICTORIA HOSPITAL, Woking, Surrey. (72 Beds.) SENIOR HOUSE OFFICER (post-registration appointment) required for medical, surgical and casualty duties; post vacant 1st January, 1957.

Apply, with 2 testimonials, to Hospital Secretary.

WOLVERHAMPTON. THE ROYAL HOSPITAL. (An Associated Hospital of the University of Birmingham Medical School.) Pre-registration HOUSE OFFICERS.

Vacancies in Surgery occur December, early January and mid-January.

Applications, with copies of testimonials, to the Secretary.

WORCESTER ROYAL INFIRMARY. (213 Beds.) House SURGEON (pre-registration or otherwise) for Orthopædic Department required mid-January. Post recognised for F.R.C.S. examinations.

Applications to Secretary.

WREXHAM (near). TREVALYN MANOR MATERNITY HOSPITAL, ROSSETT, near WREXHAM. (47 Beds.) Applications are invited for the post of HOUSE SURGEON at the above Hospital, to commence duties on 1st February, 1957. The Hospital is recognised by Central Midwives Board as a Part II Midwifery Training School and deals with normal and abnormal midwifery.

Applications, stating age, qualifications and experience, together with copies of 2 recent testimonials, to be sent to the Group Secretary, Maelor General Hospital, Wrexham, as soon as possible.

WREXHAM. WAR MEMORIAL HOSPITAL. (230 Beds.) Applications are invited for the post of HOUSE SURGEON at the above Hospital, to commence duties on 1st February, 1957. The appointment is recognised for the Diploma of F.R.C.S. (Eng. and Edin.) and is a pre-registration post.

Applications, stating age, nationality, qualifications, and experience, with copies of 2 recent testimonials, to be sent to the Group Secretary, Maelor General Hospital, Wrexham, as soon as possible.

WREXHAM. MAELOR GENERAL HOSPITAL. (591 Beds.) Applications are invited for the post of HOUSE SURGEON at the above Hospital, to commence duties on 1st February, 1957. The appointment is recognised for the Diploma of F.R.C.S. (Eng. and Edin.) and is a pre-registration post.

Applications, stating age, nationality, qualifications, and experience, with copies of 2 recent testimonials, to be sent to the Group Secretary, Maelor General Hospital, Wrexham, as soon as possible.

WREXHAM. MAELOR GENERAL HOSPITAL. (591 Beds.) Applications are invited for the post of PÆDIATRIC HOUSE PHYSICIAN at the above Hospital, to commence 1st February, 1957. The appointment is recognised for the D.C.H. and for pre-registration purposes.

Applications, stating age, nationality, qualifications and experience, together with copies of 2 recent testimonials, to the Group Secretary, Maelor General Hospital, Wrexham, as soon as possible.

AUSTRALIA. THE QUEEN VICTORIA MEMORIAL HOSPITAL, 172, Lonsdale-street, MELBOURNE, AUSTRALIA. Applications are invited from fully qualified medical practitioners for the following positions :—

RESIDENT ANÆSTHETIC REGISTRAR (Female or Male). Salary £1400 p.a., plus board and residence. Qualifications : postgraduate Diploma in Anæsthesia or equivalent experience of at least 2 years.

SESSIONAL ANÆSTHETIST (Female). Salary at rate of £390 p.a. for 1 regular session of 3½ hours per week. Emergency sessions, in addition, on roster will be required. Rate : £1 1s. plus £7 7s. per 3½ hours or pro rata.

Tenure of appointment : 1 year, with opportunity for reappointment.

The Hospital (Public Section) daily average of occupied beds totals 320 (including midwifery, surgical, medical and children).

Reply air-mail. Applications close 7th January, 1957.

NELL STEPHENSON, Manager.

CANADA. CHILDREN'S HOSPITAL OF WINNIPEG— 1957–58. House Staff openings. Applications are now being received for appointment to the following positions for the period 1st July, 1957–30th June, 1958.

(1) ASSISTANT (second year), resident pædiatrics (1).

(2) RESIDENT (pathology) (1).

(3) SENIOR INTERNES (first year resident), pædiatrics (6). Experience in these positions is acceptable to the Royal College of Physicians and Surgeons of Canada as preparation toward Fellowship or Certification in the specialty (the pathology residency qualifies for either the specialty of Pathology or Pædiatrics).

Applications should be in the hands of the Chairman of the Interne Committee before 30th December, 1956. Application forms and information brochures will be forwarded on request.

WALLACE GRANT, M.D.,
Chairman, Interne Committee, Children's Hospital.

DUBLIN. ST. LAURENCE'S HOSPITAL (Richmond.) The Board of Governors invite applications from registered medical practitioners for appointment as REGISTRAR (resident) in Neurosurgical Department. Candidates should preferably have some experience of, or desire to gain experience in, neurosurgery. Appointment, in first instance, for 1 year, and renewable for a further period of 2 years. Salary £600 p.a., plus free residential emoluments.

Applications to reach the undersigned not later than 8th January, 1957.

A. W. MACDERMOTT, Secretary and Superintendent.

NORTHERN IRELAND HOSPITALS AUTHORITY. Applications are invited for a whole-time post as REGISTRAR for Cardiac Catheterization and Angio-cardiographic Department of the Royal Victoria Hospital, Belfast. Cardiological experience an advantage but not essential. The terms and conditions will be in accordance with the application of the Spens report to Northern Ireland.

Applications to be made on a form obtainable (with further particulars) from the Secretary, Northern Ireland Hospitals Authority, 44–46, Queen-street, Belfast, and to be returned not later than 9th January, 1957.

NEW YORK. NEW ROCHELLE HOSPITAL, New ROCHELLE, NEW YORK, U.S.A. (360-Bed general community hospital.) Approved by the Joint Commission on Accreditation of Hospitals. Also approved by the American College of Surgeons and American Medical Association for Internship and Residency training. Only graduates from approved university schools accepted. INTERNESHIPS available for the 1 year term commencing 1st July, 1957. Stipend is $200 per month plus complete maintenance. Passage back to England paid by Hospital after completion of 12-month Interneship.

Apply Superintendent.

NEW YORK. ALBANY HOSPITAL, Albany, New York, U.S.A. PSYCHIATRY RESIDENCIES available in 655-Bed University-teaching General Hospital with 60-Bed acute treatment Psychiatric Unit fully approved for 3 years training. Experience includes dynamically-oriented psychotherapy with children and adults, shock therapies, and neurologic training. Salary range $3000–$4000 annually.

Address inquiries to Medical Director.

U.S.A. AMERICAN INTERNSHIP. Rotating Internship, general hospital, A.M.A. approved, 250 Beds. Municipal hospital in city adjoining Boston, Massachusetts. Salary $137.50 per month, including room and board. Excellent living-quarters.

Replies to Dr. JOSEPH P. LEONE, Director, Quincy City Hospital, 114, Whitwell-street, Quincy 69, Massachusetts, U.S.A.

IBADAN, NIGERIA. UNIVERSITY COLLEGE HOS-PITAL. SENIOR REGISTRAR and REGISTRAR (Department of Pathology). The Board of Management invite applications from experienced medical practitioners for the above appointments in the almost completed Teaching Hospital which, it is anticipated, will be functioning early in the new year.

The salaries offered for the posts are :—

The Senior Registrar : £1428 p.a., rising by 3 annual increments to a maximum of £1596 p.a.

The Registrar : first year £1164 p.a. ; second year £1212 p.a. An inducement allowance is payable to expatriate Officers of £300 p.a. for Senior Registrar and £270 p.a. for Registrar. The appointment will be initially for 1 tour of 12 months and will be renewable by mutual agreement. On satisfactory completion of the agreement a gratuity of £37 10s. will be paid for each completed period of 3 months service. An outfit allowance of £60 is payable on first appointment. Partly furnished quarters are provided at a rental of 8½% of salary, excluding inducement allowance. A Nigerian Officer will be eligible for 5 days leave on full pay for each completed month of service in Nigeria and expatriate officers will be eligible for 7 days leave for each completed month. Free first-class passages to and from Nigeria are provided for an expatriate doctor and his wife on first appointment, vacation leave and on completion of agreement. Free first-class passages to Nigeria, will, in certain circumstances be provided for non-expatriate doctors. Candidates will be eligible for children's allowance in accordance with existing regulations. Arrangements can be made to enable doctors to continue their National Health Service superannuation scheme contributions, and details of the revised salary and gratuity payable in such cases will accompany application forms.

Applications should be submitted not later than 5th January, 1957, on the appropriate forms, which will be forwarded together with additional information, on receipt of an addressed foolscap envelope, by the Adviser on Staff Recruitment, London Office, University College Hospital Ibadan, 57, Catherine-place, London, S.W.1.

Public Appointments

KINGSTON UPON HULL. CITY AND COUNTY OF KINGSTON UPON HULL. DEPUTY MEDICAL OFFICER OF HEALTH, DEPUTY PRINCIPAL SCHOOL MEDICAL OFFICER, DEPUTY PORT MEDICAL OFFICER OF HEALTH, MEDICAL INSPECTOR OF ALIENS. Applications are invited from duly qualified medical practitioners for the appointment of Deputy Medical Officer of Health for the City, to be held in conjunction with the appointments of Deputy Principal School Medical Officer, Deputy Medical Officer of Health (at Hull) to the Hull and Goole Port Health Authority, and Medical Inspector of Aliens under that Authority. Applicants must hold the Diploma in Public Health, and the possession of additional degrees, diplomas or academic distinctions will be considered an advantage. Salary scale £1700 p.a., rising by 2 annual increments of £105 and 1 of £55 to a maximum of £1965 p.a., plus essential user car allowance.

Particulars of the appointment and forms of application may be obtained from the Medical Officer of Health, Guildhall, Kingston upon Hull, to whom completed application forms must be returned not later than 7th January, 1957.

KINGSTON UPON HULL. CITY AND COUNTY OF KINGSTON UPON HULL. Applications are invited from registered medical practitioners, preferably holding a Diploma in Public Health, for the appointment of ASSISTANT MEDICAL OFFICER for duties in the Maternity and Child Welfare, School Health and other Local Health Authority's Services. Salary scale £1050–£50(3)–£55(5)–£1475, plus essential user car allowance.

Particulars of the appointment and forms of application may be obtained from the Medical Officer of Health, Guildhall, Kingston upon Hull, to whom completed application forms must be returned not later than 7th January, 1957.

RE-ADVERTISEMENT

ADMINISTRATIVE COUNTY OF LONDON. Metro-POLITAN BOROUGH OF WANDSWORTH. Combined appointments of DEPUTY DIVISIONAL MEDICAL OFFICER AND DEPUTY MEDICAL OFFICER OF HEALTH of Wandsworth. The London County Council and the Metropolitan Borough Council of Wandsworth invite applications from registered medical practitioners holding a Diploma in Public Health for the combined appointment of Deputy Divisional Medical Officer of the County Council's Health Division 9, comprising the Metropolitan Boroughs of Battersea and Wandsworth, and Deputy Borough Medical Officer of Health for Wandsworth. Remuneration will be in accordance with the formula for mixed appointments approved by Committee "C" of the Medical Whitley Council and lying within the range £2028–£2368. Commencing salary within this range will depend on the points on the constituent scales at which the 2 authorities respectively place the successful candidate. These 2 scales are: Deputy Divisional Medical Officer £1675–£55–£2005 and Deputy Borough Medical Officer of Health £1910–£105–£2120–£55–£2175.

Full particulars of the combined appointments and application forms may be obtained from the Clerk of the London County Council (W1), The County Hall, Westminster Bridge, London, S.E.1. Completed forms should be returned by not later than first post on Monday, 14th January, 1957. (2406.)

FACTORY DOCTORS. Factories Acts, 1937 and 1948. The following appointment as Appointed Factory Doctor is vacant. Apply to Chief Inspector of Factories, 19, St. James's-square, London, S.W.1.

District	*County*	*Latest date for receipt of applications*
SHIPLEY	YORK	12TH JANUARY, 1957

HER MAJESTY'S OVERSEA SERVICE. Kenya. Medical OFFICERS with qualifications registrable in United Kingdom required for general duties. Successful candidates may be posted to any station in Kenya. During earlier years of service an officer will be expected to carry out general medical and surgical duties including varying amount of public-health administration. In most stations, even if remote from the larger towns, it is possible to maintain interest in any particular branch of medicine or surgery, to which the officer is attracted. The work of every medical officer is based on a hospital which may vary in size and facilities from small district hospital, meeting needs of comparatively primitive community, to large and modern provincial hospital. Appointments can be made on permanent basis with pension (non-contributory), or on short-term contract with gratuity (taxable) payable on satisfactory completion of service. Normal retiring age is 55. Salary ranges from £1284 to £2115 a year, starting point determined by experience. 4 extra increments given to successful candidates possessing the F.R.C.S., M.R.C.P., D.P.H., or other approved higher qualifications. Permanent Medical Officers are eligible to be considered at any time for promotion to super-scale posts in Kenya and other territories in medical administrations or, if they possess higher qualification and suitable experience, in specialist posts. Quarters at rental varying from £30 to £78 a year according to size and type, and furniture at rate varying from £15 to £36 a year. Free passages in both directions for Officer and wife and up to cost of 1 adult fare for children. Taxation at local rates. Annual local leave permissible and generous home leave granted after each tour of from 24 to 45 months. Educational facilities available.

Application forms from Director of Recruitment, Colonial Office, Great Smith-street, London, S.W.1 (quoting No. BCD. 117/7/02).

YORKSHIRE. COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE. Joint appointment of SENIOR ASSISTANT COUNTY MEDICAL OFFICER AND SCHOOL MEDICAL OFFICER to the Cudworth, Darton, Darfield, Dodworth, Royston, Wombwell, and Worsborough Urban District Councils and the West Riding County Council. Applications are invited from registered medical practitioners, Men or Women, for the above post. The Senior Assistant County Medical Officer and School Medical Officer will be on the staff of the County Medical Officer's Department but will work under the administrative direction of the Divisional Medical Officer and the Medical Officer of Health, who is responsible for the day-to-day administration of practically all public health matters in the Division. The duties of the office will be mainly clinical in the School Health and Infant Welfare Services, but in addition to these duties the person appointed will be required to act for the Divisional Medical Officer and Medical Officer of Health in his absence, and will be appointed as Deputy Medical Officer of Health to the constituent Authorities. Candidates must be in possession of the D.P.H. or be nearing completion of training for the D.P.H. The scale of salary is at present £1150–£1575 p.a. Travelling and subsistence allowances according to the County Council's scale are payable in addition to salary. The post is superannuable and the successful applicant will be required to pass a medical examination as to physical fitness.

Forms of application can be obtained from the undersigned, to whom they should be returned not later than 29th December, 1956. J. WOOD-WILSON, County Medical Officer.

County Hall, Wakefield.

DURHAM COUNTY COUNCIL. Health Department. ASSISTANT MATERNITY AND CHILD WELFARE MEDICAL OFFICER. Applications are invited from registered medical practitioners (Female). Commencing salary £1050 p.a., rising by annual increments of £50 and £55 to £1475 p.a. Travelling expenses will be paid in accordance with Whitley Council scale.

The appointment is subject to certain conditions, particulars of which may be obtained from the County Medical Officer of Health, Shire Hall, Durham, to whom applications, together with the names of not more than 3 referees, should be sent not later than 12th January, 1957. Canvassing members of the Council is prohibited.

J. K. HOPE, Clerk of the County Council.

General Practice

For an Executive Council post (England and Wales) apply on form E.C.16A obtainable from the council. Mark envelope "Vacancy."

BROOKE, NORFOLK. Applications are invited for rural VACANCY due to death. 7 miles South East of Norwich. List approximately 1290 (all dispensing). Residence and surgery available by purchase. Intermediate area. Apply on Form E.C.16A, not later than 8th January, 1957, to—

R. J. COBB, Clerk of the Norfolk Executive Council.
54, Prince of Wales-road, Norwich.

Hospital Services: Non-Medical Appointments

GUILDFORD. GROUP LABORATORY. Biochemist (non-medical). Basic grade, required for the above Laboratory. Qualifications, salary, &c., as defined by the Whitley Council.

Applications, giving full particulars and names of 2 referees, to the Hospital Secretary, St. Luke's Hospital, Guildford.

OXFORD. UNITED OXFORD HOSPITALS. Department OF CLINICAL BIOCHEMISTRY, RADCLIFFE INFIRMARY, OXFORD. Applications invited for post of HOSPITAL BIOCHEMIST (Senior grade) in routine biochemical section of this department. Candidates must hold university degree in science or equivalent qualification. Salary and conditions of service in accordance with the Whitley scale. Details of post may be obtained from the Director of the Department.

Applications, with names and addresses of 2 referees, should be sent to the Administrator, Radcliffe Infirmary, Oxford, not later than 4th January, 1957.

Miscellaneous

Slough Industrial Health Service. Applications are invited for the post of Resident Assistant Medical Officer with effect from 1st January, 1957. The appointment is for 6 months. Candidates should be single, male, and have had experience in casualty work. Duties entail supervision of the emergency casualty service and the normal duties of an industrial medical officer. Salary £900 p.a. with full residential emoluments and car allowance of £150 p.a.

Applications should be submitted at once to the Medical Director, Slough Industrial Health Service, Farnham-road, Slough, with the names of 3 referees.

Western Australia. Unopposed Seaside Country Town. Surgeon required as Partner (or Assistant with view). Modern hospital (40 Beds), theatre air-conditioned. Flying Doctor base hospital. Practice income (solo) £7500 last 3 years. Substantial increase likely with 2 doctors. Goodwill half-share £2500, terms. Salary while assistant £45 per week. Non-catholic preferred. Accommodation. Fishing, shooting, sunny climate. Vendor trained Middlesex Hospital, London.—Apply air-mail, age, experience, capital, &c. Address, No. 267, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Part-time position in London Area wanted by appointed Factory Medical Officer who is in addition in general private practice.—Address, No. 270, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Off Harley-street. Ground-floor suite. Comprising reception-room, consulting-room (fitted basin), cloak-room. To be let on lease £400 p.a. inclusive of rates.—Apply: Messrs. W. H. LEE & Co., 168, Fore-street, Hertford (Telephone: Hertford 3380).

Marital and Pre-marital Clinic. The Family Planning Association, 64, Sloane-street, London, S.W.1. Patients may be referred for advice and treatment for sex difficulties. Patients only accepted through doctors, hospitals, and clinics.—Write or telephone (SLOane 0451 or 9112) for details and appointments.

Cambridge Electrocardiograph, A.C. Mains, suit-case model for sale, in excellent condition, complete with accessories. —Address, No. 269, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

"Pregnancy Diagnosis by the Xenopus Method," 24-hour service. Send specimen of urine and £1 1s. fee. Hematology, Biochemistry, Flame Photometry.—WELBECK BIOLOGICAL LABORATORIES, 26, Park-crescent, Portland-place, W.1 (MUSeum 5386–7).

Applicants for posts requiring testimonials copied or duplicated should communicate with MANTON SECRETARIAL SERVICE LTD., 98, Victoria-street, S.W.1 (Phone: VICtoria 0141), who are specialists in this kind of work.

Typewriting and Duplicating. First-class work at moder-ate prices by experienced medical typists. Electric machines. —SYBIL RANG, 21, Heath-street, Hampstead, London, N.W.3 (HAM 5329/0504).

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